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NARRATIVE AND CRITICAL

HISTORY OF AMERICA

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NARRATIVE AND CRITICAL

HISTORY OF AMERICA

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VOL. I.—PART II.

BOSTON AND NEW YORK
HOUGHTON, MIFFLIN AND COMPANY
The Riverside Press, Cambridge

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The Riverside Press, Cambridge, Mass., U. S. A.
Electrotyped and Printed by H. O. Houghton & Company.

CHAPTER IV.

THE INCA CIVILIZATION IN PERU.

BY CLEMENTS R. MARKHAM, C. B.

THE civilization of the Incas of Peru is the most important, because it is the highest, phase in the development of progress among the American races. It represents the combined efforts, during long periods, of several peoples who eventually became welded into one nation. The especial interest attaching to the study of this civilization consists in the fact that it was self-developed, and that, so far as can be ascertained, it received no aid and no impulse from foreign contact.

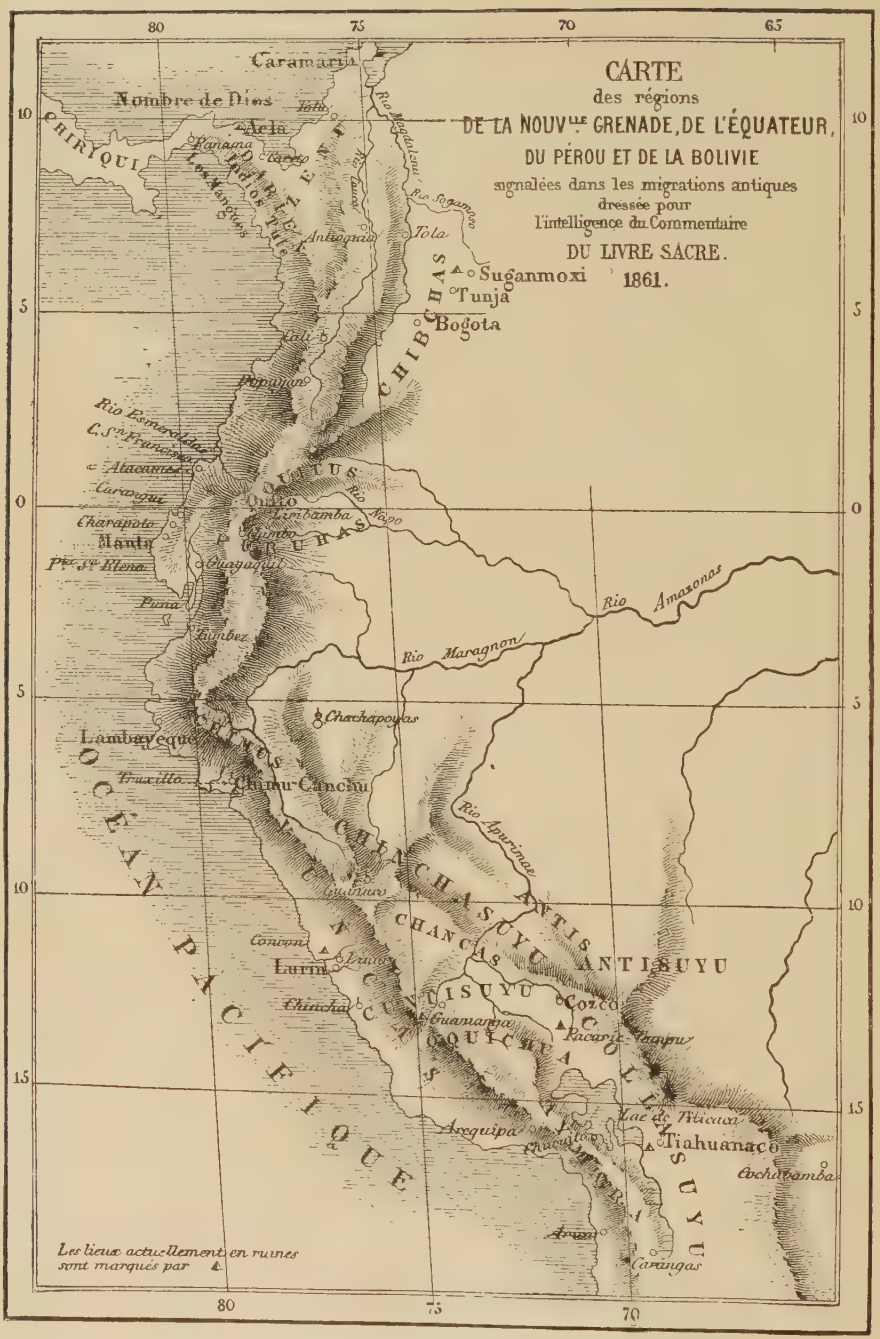
It is necessary, however, to bear in mind that the empire of the Incas, in its final development, was formed of several nations which had, during long periods, worked out their destinies apart from each other; and that one, at least, appears to have been entirely distinct from the Incas in race and language.[1] These facts must be carefully borne in mind in pursuing inquiries relating to the history of Inca civilization. It is also essential that the nature and value of the evidence on which conclusions must be based should be understood and carefully weighed. This evidence is of several kinds. Besides the testimony of Spanish writers who witnessed the conquest of Peru, or who lived a generation afterwards, there is the evidence derived from a study of the characteristics of descendants of the Inca people, of their languages and literature, and of their architectural and other remains. These various kinds of evidence must be compared, their respective values must be considered, and thus alone, in our time, can the nearest approximation to the truth be reached.

The testimony of writers in the sixteenth century, who had the advantage of being able to see the workings of Inca institutions, to examine the outcome of their civilization in all its branches, and to converse with the Incas themselves respecting the history and the traditions of their people, is the most important evidence. Much of this testimony has been preserved, but unfortunately a great deal is lost. The sack of Cadiz by the Earl of Essex, in 1595, was the occasion of the loss of Blas Valera's priceless work.[2] Other valuable writings have been left in manuscript, and have been mislaid

[1] [Mr. Markham made a special study of this point in the *Journal of the Roy. Geog. Soc.* (1871), xli. p. 281, collating its authorities. Cf. the views of Marcoy in *Travels in South America*, tr. by Rich, London, 1875. — Ed.]

[2] Except those portions which Garcilasso de la Vega has embodied in his *Commentaries*.

through neglect and carelessness. Authors are mentioned, or even quoted, whose books have disappeared. The contemplation of the fallen Inca empire excited the curiosity and interest of a great number of intelligent



MAP IN BRASSEUR'S POPUL VUH.

EARLY SPANISH MAP OF PERU.*

* [From the Paris (1774) edition of Zarate. The development of Peruvian cartography under the Spanish explorations is traced in a note in Vol. II. p. 509; but the best map for the student is a map of the empire of the Incas, showing all except the provinces of Quito and Chili, with the routes of the successive Inca conquerors marked on it, given in the *Journal of the Roy. Geog. Soc.* (1872), vol. xlii. p. 513, compiled by Mr. Trelawny Saunders to illustrate Mr. Markham's paper of the previous year, on the empire of the Incas. The map was republished by the Hakluyt Society in 1880. The map of Wiener in his *Pérou et Bolivie* is also a good one. Cf. Squier's map in his *Peru.* — ED.]

men among the Spanish conquerors. Many wrote narratives of what they saw and heard. A few studied the language and traditions of the people with close attention. And these authors were not confined to the clerical and legal professions ; they included several of the soldier-conquerors themselves.[1]

The nature of the country and climate was a potent agent in forming the character of the people, and in enabling them to make advances in civilization. In the dense forests of the Amazonian valleys, in the boundless prairies and savannas, we only meet with wandering tribes of hunters and fishers. It is on the lofty plateaux of the Andes, where extensive tracts of land are adapted for tillage, or in the comparatively temperate valleys of the western coast, that we find nations advanced in civilization.[2]

The region comprised in the empire of the Incas during its greatest extension is bounded on the east by the forest-covered Amazonian plains, on the west by the Pacific Ocean, and its length along the line of the Cordilleras was upwards of 1,500 miles, from 2° N. to 20° S. This vast tract comprises every temperature and every variety of physical feature. The inhabitants of the plains and valleys of the Andes enjoyed a temperate and generally bracing climate, and their energies were called forth by the physical difficulties which had to be overcome through their skill and hardihood. Such a region was suited for the gradual development of a vigorous race, capable of reaching to a high state of culture. The different valleys and plateaux are separated by lofty mountain chains or by profound gorges, so that the inhabitants would, in the earliest period of their history, make their own slow progress in comparative isolation, and would have little intercommunication. When at last they were brought together as one people, and thus combined their efforts in forming one system, it is likely that such a union would have a tendency to be of long duration, owing to the great difficulties which must have been overcome in its creation. On the other hand, if, in course of time, disintegration once began, it might last long, and great efforts would be required to build up another united empire. The evidence seems to point to the recurrence of these processes more than once, in the course of ages, and to their commencement in a very remote antiquity.

One strong piece of evidence pointing to the great length of time during which the Inca nations had been a settled and partially civilized race, is to be found in the plants that had been brought under cultivation, and in the animals that had been domesticated. Maize is unknown in a wild state,[3]

[1] It is, of course, necessary to consider the weight to be attached to the statements of different authors; but the most convenient method of placing the subject before the reader will be to deal in the present chapter with general conclusions, and to discuss the comparative merits of the authorities in the Critical Essay on the sources of information.

[2] [For special study, see Paz Soldan's *Geografía del Peru ;* Menendez' *Manual de Geografía del Peru ;* and Wiener's *L'Empire des Incas*, ch. I. — Ed.]

[3] "Jusqu'à present on n'a pas retrouvé le maïs, d'une manière certaine, a l'état sauvage" (De Candolle's *Géographie botanique raisonnée*, p. 951).

and many centuries must have elapsed before the Peruvians could have produced numerous cultivated varieties, and have brought the plant to such a high state of perfection. The peculiar edible roots, called *oca* and *aracacha*, also exist only as cultivated plants. There is no wild variety of the *chirimoya*, and the Peruvian species of the cotton plant is known only under cultivation.[1] The potato is found wild in Chile, and probably in Peru, as a very insignificant tuber. But the Peruvians, after cultivating it for centuries, increased its size and produced a great number of edible varieties.[2] Another proof of the great antiquity of Peruvian civilization is to be found in the llama and alpaca, which are domesticated animals, with individuals varying in color: the one a beast of burden yielding coarse wool, and the other bearing a thick fleece of the softest silken fibres. Their prototypes are the wild huanaco and vicuña, of uniform color, and untameable. Many centuries must have elapsed before the wild creatures of the Andean solitudes, with the habits of chamois, could have been converted into the Peruvian sheep which cannot exist apart from men.[3]

LLAMAS.*

These considerations point to so vast a period during which the existing race had dwelt in the Peruvian Andes, that any speculation respecting its origin would necessarily be futile in the present state of our knowledge.[4] The weight of tradition indicates the south as the quarter whence the people came whose descendants built the edifices at Tiahuanacu.

[1] De Candolle, p. 983.

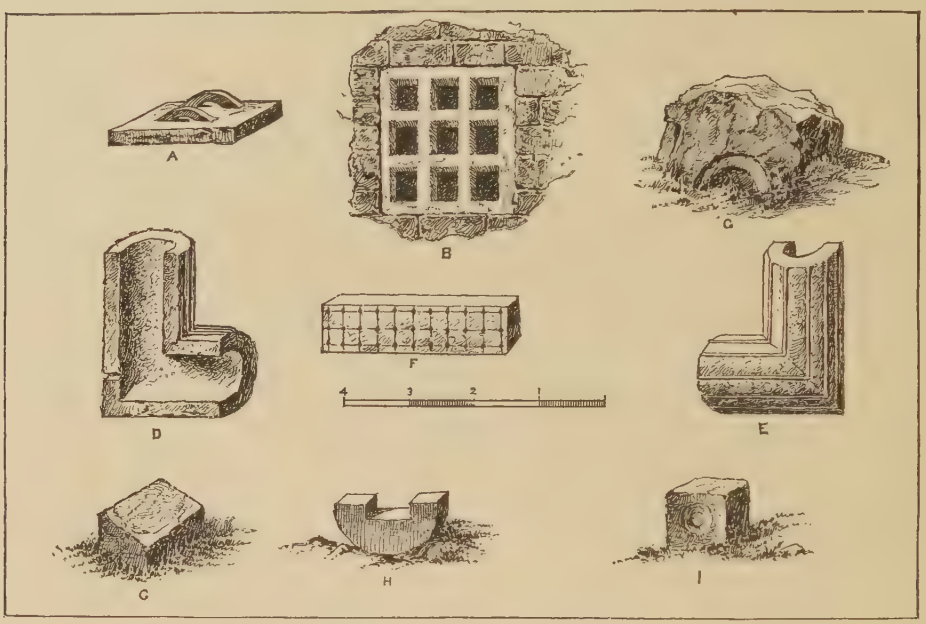
[2] There is a wild variety in Mexico, the size of a nut, and attempts have been made to increase its size under cultivation during many years, without any result. This seems to show that a great length of time must have elapsed before the ancient Peruvians could have brought the cultivation of the potato to such a high state of perfection as they undoubtedly did.

[3] Some years ago a priest named Cabrera, the cura of a village called Macusani, in the province of Caravaya, succeeded in breeding a cross between the wild vicuña and the tame alpaca. He had a flock of these beautiful animals, which yielded long, silken, white wool; but they required extreme care, and died out when the sustaining hand of Cabrera was no longer available. There is also a cross between a llama and an alpaca, called *guariso*, as large as the llama, but with much more wool. The guanaco and llama have also been known to form a cross; but there is no instance of a cross between the two wild varieties, — the guanaco and vicuña. The extremely artificial life of the alpaca, which renders that curious and valuable animal so absolutely dependent on the ministrations of its human master, and the complete domestication of the llama, certainly indicate the lapse of many centuries before such a change could have been effected.

[4] [Cf. remarks of Daniel Wilson in his *Prehistoric Man*, i. 243. — ED.]

* [One of the cuts which did service in the Antwerp edition of Cieza de Leon. Cf. Bollaert on the llama, alpaca, huanaco, and vicuña species in the *Sporting Review*, Feb., 1863; the cuts in Squier, pp. 246, 250; Dr. Van Tschudi, in the *Zeitschrift für Ethnologie*, 1885. — ED.]

The most ancient remains of a primitive people in the Peruvian Andes consist of rude *cromlechs*, or burial-places, which are met with in various localities. Don Modesto Basadre has described some by the roadside, in the descent from Umabamba to Charasani, in Bolivia. These cromlechs are formed of four great slabs of slate, each slab being about five feet high, four or five in width, and more than an inch thick. The four slabs are perfectly shaped and worked so as to fit into each other at the corners. A fifth slab is placed over them, and over the whole a pyramid of clay and rough stones



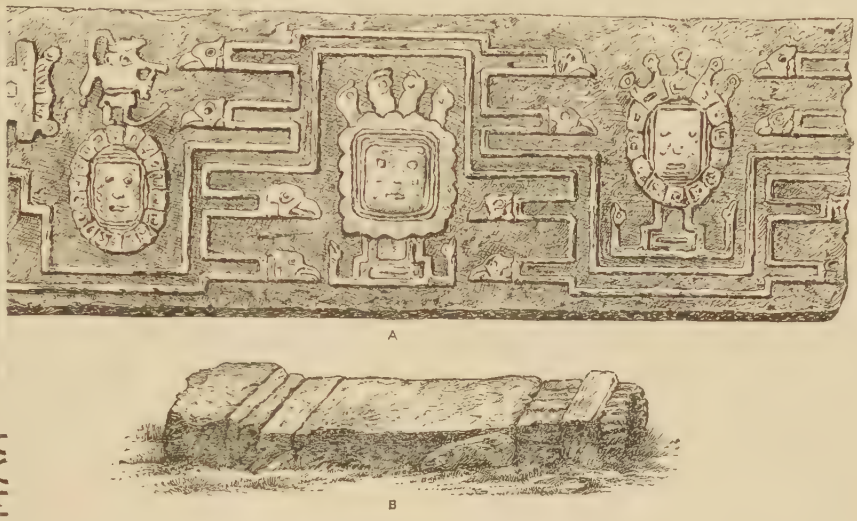
DETAILS AT TIAHUANACU.*

is piled. These cromlechs are the early memorials of a race which was succeeded by the people who constructed the cyclopean edifices of the Andean plateaux.

For there is reason to believe that a powerful empire had existed in Peru centuries before the rise of the Inca dynasty. Cyclopean ruins, quite foreign to the genius of Inca architecture, point to this conclusion. The wide area over which they are found is an indication that the government which caused them to be built ruled over an extensive empire, while their cyclopean character is a proof that their projectors had an almost unlimited supply of labor. Religious myths and dynastic traditions throw some doubtful light on that remote past, which has left its silent memorials in the huge stones of Tiahuanacu, Sacsahuaman, and Ollantay, and in the altar of Concacha.

* KEY:— A, Lid or cover of some aperture, of stone, with two handles neatly undercut. B, A window of trachyte, of careful workmanship, in one piece. C, Block of masonry with carving. D, E, Two views of a corner-piece to some stone conduit, carefully ornamented with projecting lines. F, G, H, I, Other pieces of cut masonry lying about.

The most interesting ruins in Peru are those of the palace or temple near village of Tiahuanacu,[1] on the southern side of Lake Titicaca. They



CARVINGS AT TIAHUANACU.*

BAS-RELIEFS AT TIAHUANACU.†

[1] The name is of later date. One story is that, when an Inca was encamped there, a messenger reached him with unusual celerity, whose speed was compared with that of the "*huanaco.*" The Inca said, "*Tia*" (sit or rest), "*O! huanaco.*"

* KEY: — A, Portion of the ornament which runs along the base of the rows of figures on the monolithic doorway. B, Prostrate idol lying on its face near the ruins; about 9 feet long.

† KEY: — A, A winged human figure with the crowned head of a condor, from the central row on the monolithic doorway. B, A winged human figure with human head crowned, from the upper row on the monolithic doorway.

[There are well-executed cuts of these sculptures in Ruge's *Geschichte des Zeitalters der Entdeckungen*, pp. 430, 431. Cf. Squier's *Peru*, p. 292. — ED.]

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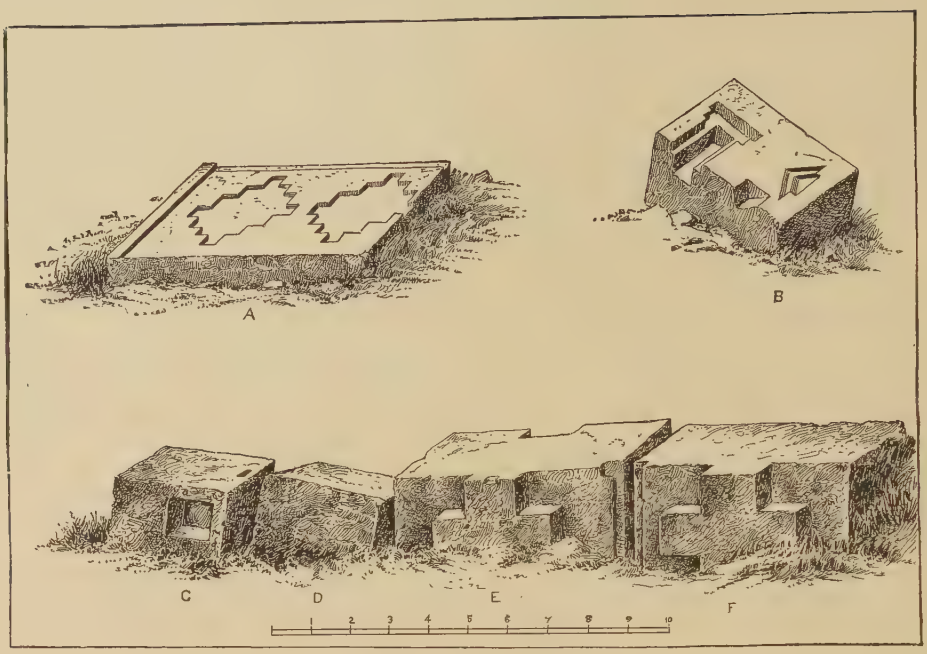
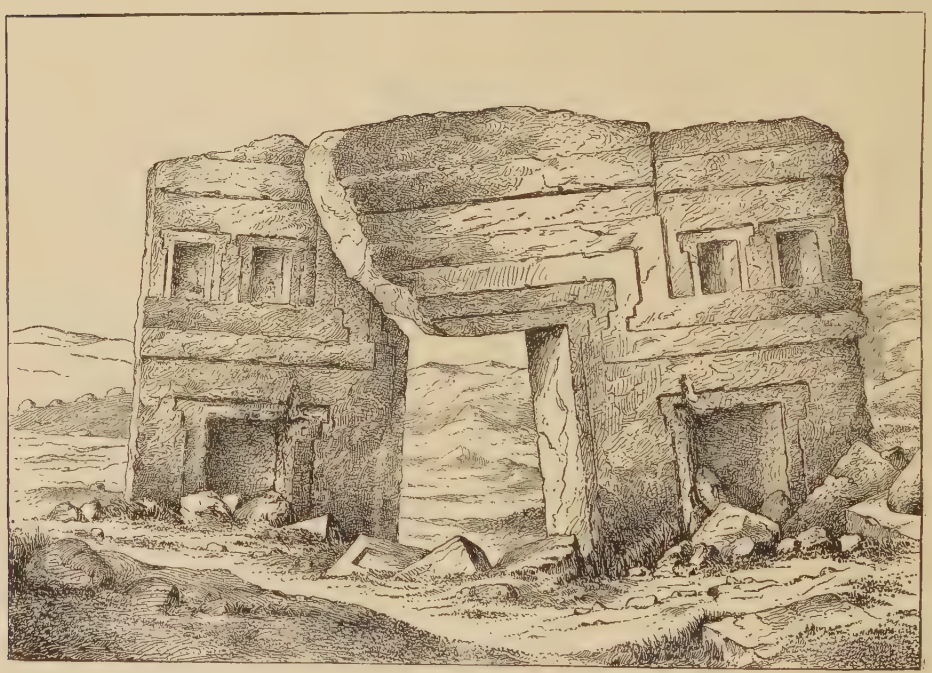


FRAGMENTS AT TIAHUANACU.*



REVERSE OF THE DOORWAY AT TIAHUANACU. †

* Various curiously carved stones found scattered about the ruins.

† [Cf. view in Squier's *Peru*, p. 289, with other particulars of the ruins, p. 276, etc. — Ed.]

are 12,930 feet above the level of the sea, and 130 above that of the lake, which is about twelve miles off. They consist of a quadrangular space, entered by the famous monolithic doorway, and surrounded by large stones standing on end; and of a hill or mound encircled by remains of a wall, consisting of enormous blocks of stone. The whole covers an area about 400 yards long by 350 broad. There is a lesser temple, about a quarter of

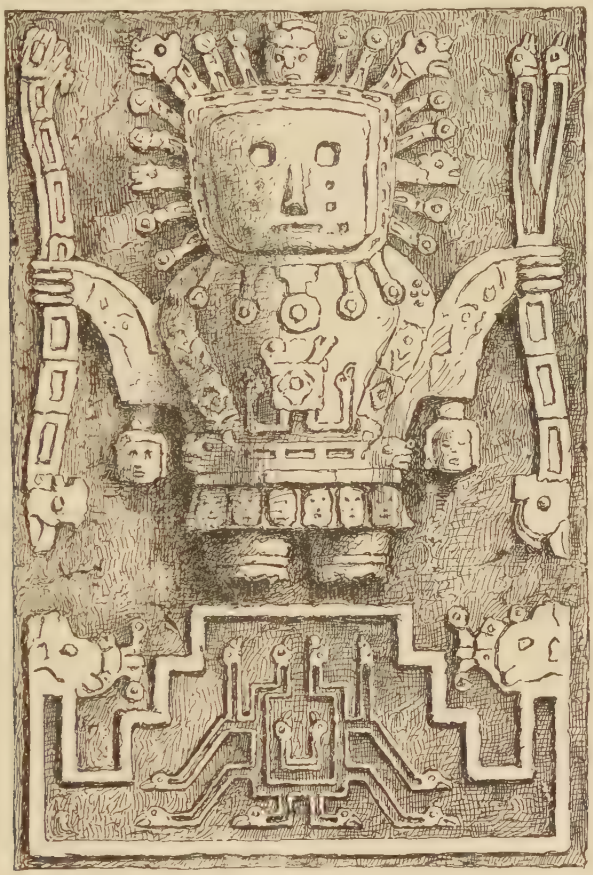


IMAGE AT TIAHUANACU.*

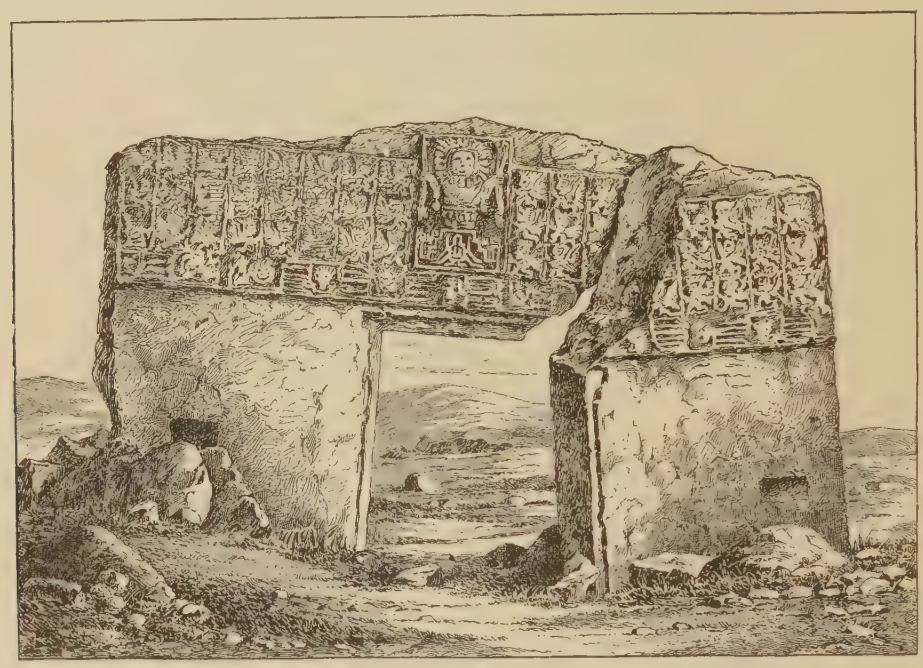
a mile distant, containing stones 36 feet long by 7, and 26 by 16, with recesses in them which have been compared to seats of judgment. The weight of the two great stones has been estimated at from 140 to 200 tons each, and the distance of the quarries whence they could have been brought is from 15 to 40 miles.

The monolithic portal is one block of hard trachytic rock, now deeply

* [This is an enlarged drawing of the bas-relief shown in the picture of the broken doorway (p. 218). Cf. the cuts in the article on the ruins of Tiahuanacu in the *Revue d'Architecture des Travaux publics*, vol. xxiv.; in Ch. Wiener's *L'Empire des Incas*, pl. iii.; in D'Orbigny's Atlas to his *L'Homme Américain;* and in Squier's *Peru*, p. 291. — Ed.]

sunk in the ground. Its height above ground is 7 ft. 2 in., width 13 ft. 5 in., thickness 1 ft. 6 in., and the opening is 4 ft. 6 in. by 2 ft. 9 in. The outer side is ornamented by accurately cut niches and rectangular mouldings. The whole of the inner side, from a line level with the upper lintel of the doorway to the top, is a mass of sculpture, which speaks to us, in difficult riddles, alas! of the customs and art-culture, of the beliefs and traditions, of an ancient and lost civilization.

In the centre there is a figure carved in high relief, in an oblong compartment, 2 ft. 2 in. long by 1 ft. 6 in.[1] Squier describes this figure as



BROKEN MONOLITH DOORWAY AT TIAHUANACU.*

angularly but boldly cut. The head is surrounded by rays, each terminating in a circle or the head of an animal. The breast is adorned with two serpents united by a square band. Another band, divided into ornamented compartments, passes round the neck, and the ends are brought down to the girdle, from which hang six human heads. Human heads also hang from the elbows, and the hands clasp sceptres which terminate in the heads of condors. The legs are cut off near the girdle, and below there are a series of frieze-like ornaments, each ending with a condor's head. On either side of this central sculpture there are three tiers of figures, 16 in

[1] Basadre's measurement is 32 inches by 21.

* [An enlarged drawing of the image over the arch is given in another cut. This same ruin is well represented in Ruge's *Gesch. des Zeitalters der Entdeckungen;* and not so well in Wiener's *Pérou et Bolivie*, p. 419. Cf. Squier's *Peru*, p. 288. — Ed.]

each tier, or 48 in all, each in a kneeling posture, and facing towards the large central figure.* Each figure is in a square, the sides of which measure eight inches. All are winged, and hold sceptres ending in condors' heads; but while those in the upper and lower tiers have crowned human heads, those in the central tier have the heads of condors. There is a profusion of orna-

TIAHUANACU RESTORED.*

ment on all these figures, consisting of heads of birds and fishes. An ornamental frieze runs along the base of the lowest tier of figures, consisting of an elaborate pattern of angular lines ending in condors' heads, with larger human heads surrounded by rays, in the intervals of the pattern. Cieza de Leon and Alcobasa[1] mention that, besides this sculpture over the doorway, there were richly carved statues at Tiahuanacu, which have since been destroyed, and many cylindrical pillars with capitals. The head of one statue, with a peculiar head-dress, which is 3 ft. 6 in. long, still lies by the roadside.

The masonry of the ruins is admirably worked, according to the testimony of all visitors. Squier says: "The stone itself is a dark and exceedingly hard trachyte. It is faced with a precision that no skill can excel. Its lines are perfectly drawn, and its right angles turned with an accuracy that the most careful geometer could not surpass. I do not believe there exists a better piece of stone-cutting, the material considered, on this or the other continent."

It is desirable to describe these ruins, and especially the sculpture over

[1] Quoted by Garcilasso de la Vega, Pte. I. lib. III. cap. 1.

* After a drawing given in *The Temple of the Andes* by Richard Inwards (London, 1884).

the monolithic doorway, with some minuteness, because, with the probable exception of the cromlechs, they are the most ancient, and, without any exception, the most interesting that have been met with in Peru. There is nothing elsewhere that at all resembles the sculpture on the monolithic doorway at Tiahuanacu.[1] The central figure, with rows of kneeling worshippers on either side, all covered with symbolic designs, represents, it may be conjectured, either the sovereign and his vassals, or, more probably, the Deity, with representatives of all the nations bowing down before him. The sculpture and the most ancient traditions should throw light upon each other.

Further north there are other examples of prehistoric cyclopean remains. Such is the great wall, with its "stone of 12 corners," in the Calle del Triunfo at Cuzco. Such is the famous fortress of Cuzco, on the Sacsahuaman

RUINS OF SACSAHUAMAN.*

Hill. Such, too, are portions of the ruins at Ollantay-tampu. Still farther north there are cyclopean ruins at Concacha, at Huiñaque, and at Huaraz.

Tiahuanacu is interesting because it is possible that the elaborate character of its symbolic sculpture may throw glimmerings of light on remote

[1] Basadre mentions a carved stone brought from the department of Ancachs, in Peru, which had some resemblances to the stones at Tiahuanacu. A copy of it is in possession of Señor Raimondi.

* [After a cut in Ruge's *Geschichte des Zeitalters der Entdeckungen*. Markham has elsewhere described these ruins, — *Cieza de Leon*, 259, 324; 2d part, 160; *Royal Commentaries of the Incas*, ii., with a plan, reproduced in Vol. II. p. 521, and another plan of Cuzco, showing the position of the fortress in its relations to the city. There are plans and views in Squier's *Peru*, ch. 23. — Ed.]

history; but Sacsahuaman, the fortress overlooking the city of Cuzco, is, without comparison, the grandest monument of an ancient civilization in the New World. Like the Pyramids and the Coliseum, it is imperishable. It consists of a fortified work 600 yards in length, built of gigantic stones, in three lines, forming walls supporting terraces and parapets arranged in salient and retiring angles. This work defends the only assailable side of a position which is impregnable, owing to the steepness of the ascent in all other directions. The outer wall averages a height of 26 feet. Then there is a terrace 16 yards across, whence the second wall rises to 18 feet. The second terrace is six yards across, and the third wall averages a height of 12 feet. The total height of the fortification is 56 feet. The stones are of blue limestone, of enormous size and irregular in shape, but fitted into each other with rare precision. One of the stones is 27 feet high by 14, and stones 15 feet high by 12 are common throughout the work.

At Ollantay-tampu the ruins are of various styles, but the later works are raised on ancient cyclopean foundations.[1] There are six porphyry slabs 12 feet high by 6 or 7; stone beams 15 and 20 feet long; stairs and recesses hewn out of the solid rock. Here, as at Tiahuanacu, there were, according to Cieza de Leon,[2] men and animals carved on the stones, but they have disappeared. The same style of architecture, though only in fragments, is met with further north.

East of the river Apurimac, and not far from the town of Abancay, there are three groups of ancient monuments in a deep valley surrounded by lofty spurs of the Andes. There is a great cyclopean wall, a series of seats or thrones of various forms hewn out of the solid stone, and a huge block carved on five sides, called the *Rumi-huasi*. The northern face of this monolith is cut into the form of a staircase; on the east there are two enormous seats separated by thick partitions, and on the south there is a sort of lookout place, with a seat. Collecting channels traverse the block, and join trenches or grooves leading to two deep excavations on the western side. On this western side there is also a series of steps, apparently for the fall of a cascade of water connected with the sacrificial rites. Molina gives a curious account of the water sacrifices of the Incas.[3] The *Rumi-huasi* seems to have been the centre of a great sanctuary, and to have been used as an altar. Its surface is carved with animals amidst a labyrinth of cavities and partition ridges. Its length is 20 feet by 14 broad, and 12 feet high. Here we have, no doubt, a sacrificial altar of the ancient people, on which the blood of animals and libations of *chicha* flowed in torrents.[4]

Spanish writers received statements from the Indians that one or other of these cyclopean ruins was built by some particular Inca. Garcilasso de la Vega even names the architects of the Cuzco fortress. But it is clear from the evidence of the most careful investigators, such as Cieza de Leon,

[1] [Cf. plans and views in Squier's *Peru*, ch. 24. — ED.]

[2] Cap. 94.

[3] See page 238.

[4] The name of the place where these remains are situated is Concacha, from the Quichua word "*Cuncachay*," — the act of holding down a victim for sacrifice; literally, "to take by the neck."

that there was no real knowledge of their origin, and that memory of the builders was either quite lost, or preserved in vague, uncertain traditions.

The most ancient myth points to the region of Lake Titicaca as the scene of the creative operations of a Deity, or miracle-working Lord.[1] This Deity is said to have created the sun, moon, and stars, or to have caused them to rise out of Lake Titicaca. He also created men of stone at Tiahuanacu, or of clay; making them pass under the earth, and appear again out of caves, tree-trunks, rocks, or fountains in the different provinces which were to be peopled by their descendants. But this seems to be a later attempt to reconcile the ancient Titicaca myth with the local worship of natural objects as ancestors or founders of their race, among the numerous subjugated tribes; as well as to account for the colossal statues of unknown origin at Tiahuanacu. There are variations of the story, but there is general concurrence in the main points: that the Deity created the heavenly bodies and the human race, and that the ancient people, or their rulers, were called *Pirua*. Tradition also seems to point to regions south of the lake as the quarter whence the first settlers came who worked out the earliest civilization.[2] We may, in accordance with all the indications that are left to us, connect the great god *Illa Ticsi* with the central figure of the Tiahuanacu sculpture, and the kneeling worshippers with the rulers of all the nations and tribes which had been subjugated by the *Hatun-runa*,[3] — the great men who had Pirua for their king, and who originally came from the distant south. The Piruas governed a vast empire, erected imperishable cyclopean edifices, and developed a complicated civilization, which is dimly indicated to us by the numerous symbolical sculptures on the monolith. They

[1] The names of this god were *Con-Illa-Tici-Uiracocha*, and he was the *Pachayachachic*, or Teacher of the World. *Pacha* is "time," or "place;" also "the universe." "*Yachachic*," a teacher, from "*Yachachini*," "I teach." *Con* is said to signify the creating Deity (*Betanzos, Garcia*). According to Gomara, Con was a creative deity who came from the north, afterwards expelled by Pachacamac, and a modern authority (Lopez, p. 235) suggests that *Con* represented the "cult of the setting sun," because *Cunti* means the west. *Tici* means a founder or foundation, and *Illa* is light, from *Illani*, "I shine:" "The Origin of Light" (*Montesinos. Anonymous Jesuit.* Lopez suggests "*Ati*," an evil omen, — the Moon God); or, according to one authority, "Light Eternal" (*The anonymous Jesuit*). *Vira* is a corruption of *Pirua*, which is said by some authorities to be the name of the first settler, or the founder of a dynasty; and by others to mean a "depository," a "place of abode;" hence a "dweller," or "abider." *Cocha* means "ocean," "abyss," "profundity," "space." *Uiracocha*, "the Dweller in Space." So that the whole would signify "God: the Creator of Light:" "the Dweller in Space: the Teacher of the World."

Some authors gave the meaning of *Uiracocha* to be "foam of the sea:" from *Uira* (*Huira*), "grease," or "foam," and *Cocha*, "ocean," "sea," "lake." Garcilasso de la Vega pointed out the error. In compound words of a nominative and genitive, the genitive is invariably placed first in Quichua; so that the meaning would be "a sea of grease," not "grease of the sea." Hence he concludes that *Uiracocha* is not a compound word, but simply a name, the derivation of which he does not attempt to explain. Blas Valera says that it means "the will and power of God;" not that this is the signification of the word, but that such were the godlike attributes of the being who was known by it. Acosta says that to *Ticsi Uiracocha* they assigned the chief power and command over all things. The anonymous Jesuit tells us that *Illa Ticsi* was the original name, and that *Uiracocha* was added later.

Of these names, *Illa Ticci* appears to have been the most ancient.

[2] Cieza de Leon and Salcamayhua.

[3] Montesinos calls the ancient people, who were peaceful and industrious, *Hatu-runa*, or "Great men." See also Matienza (MS. Brit. Mus.).

also, in a long course of years, brought wild plants under cultivation, and domesticated the animals of the lofty Andean plateau. But it is remarkable that the shores of Lake Titicaca, which are almost treeless, and where corn will not ripen, should have been chosen as the centre of this most ancient civilization. Yet the ruins of Tiahuanacu conclusively establish the fact that the capital of the Piruas was on the loftiest site ever selected for the seat of a great empire.

The Amautas, or learned men of the later Inca period, preserved the names of sovereigns of the Pirua dynasty, commencing with Pirua Manco, and continuing for sixty-five generations. Lopez conjectures that there was a change of dynasty after the eighteenth Pirua king, because hitherto Montesinos, who has recorded the list, had always called each successor *son* and heir, but after the eighteenth only heir. Hence he thinks that a new dynasty of Amautas, or kings of the learned caste, succeeded the Piruas. The only deeds recorded of this long line of kings are their success in repelling invasions and their alterations of the calendar. At length there appears to have been a general disruption of the empire: Cuzco was nearly deserted, rebel leaders rose up in all directions, the various tribes became independent, and the chief who claimed to be the representative of the old dynasties was reduced to a small territory to the south of Cuzco, in the valley of the Vilcamayu, and was called "King of Tampu Tocco." This state of disintegration is said to have continued for twenty-eight generations, at the end of which time a new empire began to be consolidated under the Incas, which inherited the civilization and traditions of the ancient dynasties, and succeeded to their power and dominion.

It was long believed that the lists of kings of the earlier dynasties rested solely on the authority of Montesinos, and they consequently received little credit. But recent research has brought to light the work of another writer, who studied before Montesinos, and who incidentally refers to two of the sovereigns in his lists.[1] This furnishes independent evidence that the catalogues of early kings had been preserved orally or by means of *quipus*, and that they were in existence when the Spaniards conquered Peru; thus giving weight to the testimony of Montesinos.

The second myth of the Peruvians refers to the origin of the Incas, who derived their descent from the kings of Tampu Tocco, and had their original home at Paccari-tampu, in the valley of the Vilcamayu, south of Cuzco. It is, therefore, an ancestral myth. It is related that four brothers, with their four sisters, issued forth from apertures (*Tocco*) in a cave at Paccari-tampu, a name which means "the abode of dawn." The brothers were called Ayar Manco, Ayar Cachi, Ayar Uchu, and Ayar Sauca, names to which the Incas, in the time of Garcilasso de la Vega, gave a fanciful meaning.[2] One

[1] *The anonymous Jesuit*, p. 178. A work referred to by Oliva as having been written by Blas Valera also mentions some of the early kings by name. (See Saldamando, *Jesuitas del Peru*, p. 22.)

[2] *Cachi* ("salt") was the Inca's instruction in rational life, *Uchu* ("pepper") was the delight the people derived from this teaching, and *Sauca* ("joy") means the happiness afterwards experienced.

of the brothers showed extraordinary prowess in hurling a stone from a sling. The others became jealous, and, persuading Ayar Auca, the expert slingsman, to return into the cave, they blocked the entrance with rocks. Ayar Uchu was converted into a stone idol, on the summit of a hill near Cuzco, called Huanacauri. Manco then advanced to Cuzco with his youngest brother, and found that the place was occupied by a chief named Alcaviza and his people. Here Manco established the seat of his government, and the Alcaviza tribe appears to have submitted to him, and to have lived side by side with the Incas for some generations. The Huanacauri hill was considered the most sacred place in Peru; while the *Tampu-tocco*, or cave at Paccari-tampu, was, through the piety of descendants, faced with a masonry wall, having three windows lined with plates of gold.

There is a third myth which seems to connect the ancient tradition of Titicaca with the ancestral myth of the Incas. It is said that long after the creation by the Deity, a great and beneficent being appeared at Tiahuanacu, who divided the world among four kings: Manco Ccapac, Colla, Tocay [1] or Tocapo,[2] and Pinahua.[3] The names Tuapaca,[4] Arnauan,[4] Tonapa,[5] and Tarapaca[5] occur in connection with this being, while some authorities tell us that his name was unknown. Betanzos says that he went from Titicaca to Cuzco, where he set up a chief named Alcaviza, and that he advanced through the country until he disappeared over the sea at Puerto Viejo. It is also related that the people of Canas attacked him, but were converted by a miracle, and that they built a great temple, with an image, at Cacha, in honor of this being, or of his god Illa Ticsi Uiracocha. This temple now forms a ruin which in its structure and arrangement is unique in Peru, and therefore deserves special attention.

The ruins of the temple of Cacha are in the valley of the Vilca-mayu, south of Cuzco. They were described by Garcilasso de la Vega, and have been visited and carefully examined by Squier. The main temple was 330 feet long by 87 broad, with wrought-stone walls and a steep pitched roof. A high wall extended longitudinally through the centre of the structure, consisting of a wrought-stone foundation, 8 feet high and $5\frac{1}{2}$ feet thick on the level of the ground, supporting an adobe superstructure, the whole being 40 feet high. This wall was pierced by 12 lofty doorways, 14 feet high. But midway there are sockets for the reception of beams, showing the existence of a second story, as described by Garcilasso. Between the transverse and outer walls there were two series of pillars, 12 on each side, built like the transverse wall, with 8 feet of wrought stone, and completed to a height of 22 feet with adobes. These pillars appear to have supported the second floor, where, according to Garcilasso, there was a shrine containing the statue of Uiracocha. At right angles to the temple, Squier discovered the remains of a series of supplemental edifices surrounding courts, and built upon a terrace 260 yards long.

[1] G. de la Vega.
[2] Molina, p. 7.
[3] Pirua?
[4] Cieza de Leon; Herrera.
[5] Salcamayhua.

The peculiarities of the temple of Cacha consist in the use of rows of columns to support a second floor, and in the great height of the walls. In these respects it is unique, and if similar edifices ever existed, they appear to have been destroyed previous to the rise of the Inca empire. The Cacha temple belongs neither to the cyclopean period of the Piruas nor to the Inca style of architecture. Connected with the strange myth of the wandering prophet of Viracocha, it stands by itself, as one of those unsolved problems which await future investigation. The statue in the shrine on the upper story is described by Cieza de Leon, who saw it.

Both the Titicaca and the Cacha myths have, in later times, been connected and more or less amalgamated with the ancestral myth of the Incas. Thus Garcilasso de la Vega makes Manco Ccapac come direct from Titicaca; while Molina refers to him as one of the beings created there, who went down through the earth and came up at Paccari-tampu. Salcamayhua makes the being Tonapa, of the Cacha myth, arrive at Apu Tampu, or Paccari-tampu, and leave a sacred sceptre there, called *tupac yauri*, for Manco Ccapac. These are later interpolations, made with the object of connecting the family myth of the Incas with more ancient traditions. The wise men of the Inca system, through the care of Spanish writers of the time of the conquest, have handed down these three traditions and the catalogue of kings. The Titicaca myth tells us of the Deity worshipped by the builders of Tiahuanacu, and the story of the creation. The Cacha myth has reference to some great reformer of very ancient times. The Paccari-tampu myth records the origin of the Inca dynasty. Although they are overlaid with fables and miraculous occurrences, the main facts touching the original home of Manco Ccapac and his march to Cuzco are probably historical.

The catalogue of kings given by Montesinos, allowing an average of twenty years for each, would place the commencement of the Pirua dynasty in about 470 B. C.; in the days when the Greeks, under Cimon, were defeating the Persians, and nearly a century after the death of Sakya Muni in India. This early empire flourished for about 1,200 years, and the disruption took place in 830 A. D., in the days of King Egbert. The disintegration continued for 500 years, and the rise of the Incas under Manco was probably coeval with the days of St. Louis and Henry III of England.[1] By that time the country had been broken up into separate tribes for 500 years, and the work of reunion, so splendidly achieved by the Incas, was most arduous. At the same time, the ancient civilization of the Piruas was partially inherited by the various peoples whose ancestors composed their empire; so that the Inca civilization was a revival rather than a creation.

The various tribes and nations of the Andes, separated from each other by uninhabited wildernesses and lofty mountain chains, were clearly of the same origin, speaking dialects of the same language. Since the fall of the

[1] Blas Valera allows a period of 600 years for the existence of the Inca dynasty, which throws its origin back to the days of Alfred the Great. Garcilasso allows 400 years, which would make its rise to be contemporary with Henry II of England. But twelve generations, allowing twenty-five years for each, would only occupy 300 years.

Piruas they had led an independent existence. Some had formed powerful confederations, others were isolated in their valleys. But it was only through much hard fighting and by consummate statesmanship that the one small Inca lineage established, in a period of less than three centuries, imperial dominion over the rest. It will be well, in this place, to take a brief survey of the different nations which were to form the empire of the Incas, and of their territories.

The central Andean region, which was the home of the imperial race of Incas, extends from the water-parting between the sources of the Ucayali and the basin of Lake Titicaca to the river Apurimac. It includes wild mountain fastnesses, wide expanses of upland, grassy slopes, lofty valleys such as that in which the city of Cuzco is built, and fertile ravines, with the most lovely scenery. The inhabitants composed four tribes: that of the Incas in the valley of the Vilcamayu, of the Quichuas in the secluded ravines of the Apurimac tributaries, and those of the Canas and Cauchis in the mountains bordering on the Titicaca basin. These people average a height of 5 ft. 4 in., and are strongly built. The nose is invariably aquiline, the mouth rather large; the eyes black or deep brown, bright, and generally deep set, with long fine lashes. The hair is abundant and long, fine, and of a deep black-brown. The men have no beards. The skin is very smooth and soft, and of a light coppery-brown color, the neck thick, and the shoulders broad, with great depth of chest. The legs are well formed, feet and hands very small. The Incas have the build and physique of mountaineers.

To the south of this cradle of the Inca race extended the region of the Collas[1] and allied tribes, including the whole basin of Lake Titicaca, which is 12,000 feet above the level of the sea. The Collas dwelt in stone huts, tended their flocks of llamas, and raised crops of ocas, quinoas, and potatoes. They were divided into several tribes, and were engaged in constant feuds, their arms being slings and *ayllos*, or bolas. The Collas are remarkable for great length of body compared with the thigh and leg, and they are the only people whose thighs are shorter than their legs. Their build fits them for excellence in mountain climbing and pedestrianism, and for the exercise of extraordinary endurance.[2] The homes of the Collas were around the seat of ancient civilization at Tiahuanacu.

A remarkable race, apart from the Incas and Collas, of darker complexion and more savage habits, dwelt and still dwell among the vast beds of reeds in the southwestern angle of Lake Titicaca. They are called Urus, and are probably descendants of an aboriginal people who occupied the Titicaca basin before the arrival of the Hatun-runas from the south. The Urus spoke a distinct language, called *Puquina*, specimens of which have been

[1] Erroneously called *Aymaras* by the Spaniards. The name, which really belongs to a branch of the Quichua tribe, was first misapplied to the Colla language by the Jesuits at Juli, and afterwards to the whole Colla race.

[2] Don Modesto Basadre tells us that he sent an Indian messenger, named Alejo Vilca, from Puno to Tacna, a distance of 84 leagues, who did it in 62 hours, his only sustenance being a little dried maize and coca, — over four miles an hour for 252 miles.

preserved by Bishop Oré.[1] The ancestors of the Urus may have been the cromlech builders, driven into the fastnesses of the lake when their country was occupied by the more powerful invaders, who erected the imperishable monuments at Tiahuanacu. These Urus are now lake-dwellers. Their homes consist of large canoes, made of the tough reeds which cover the shallow parts of the lake, and they live on fish, and on quinua and potatoes, which they obtain by barter.

North of Cuzco there were several allied tribes, resembling the Incas in physique and language, in a similar stage of civilization, and their rivals in power. Beyond the Apurimac, and inhabiting the valleys of the Andes thence to the Mantaro, was the important nation of the Chancas; and still further north and west, in the valley of the Xauxa, was the Huanca nation. Agricultural people and shepherds, forming *ayllus*, or tribes of the Chancas and Huancas, occupied the ravines of the maritime cordillera, and extended their settlements into several valleys of the seacoast, between the Rimac and Nasca. These coast people of Inca race, known as Chinchas, held their own against an entirely different nation, of distinct origin and language, who occupied the northern coast valleys from the Rimac to Payta, and also the great valley of Huarca (the modern Cañete), where they had Chincha enemies both to the north and south of them. These people were called *Yuncas* by their Inca conquerors. Their own name was Chimu, and the language spoken by them was called *Mochica*. But this question relating to the early inhabitants of the coast valleys of Peru, their origin and civilization, is the most difficult in ancient Peruvian history, and will require separate consideration.[2]

North of the Huanca nation, along the basin of the Marañon, there were tribes which were known to the Incas by their head-dresses. These were the Conchucus, Huamachucus, and Huacrachucus.[3] Still further north, in the region of the equator, was the powerful nation of Quitus.

All these nations of the Peruvian Andes appear to have once formed part of the mighty prehistoric empire of the Pirhuas, and to have retained much of the civilization of their ancestors during the subsequent centuries of separate existence and isolation. This probably accounts for the ease with which the Incas established their system of religion and government throughout their new empire, after the conquests were completed. The subjugated nations spoke dialects of the same language, and inherited many of the usages and ideas of their conquerors. For the same reason they were pretty equally matched as foes, and the Incas secured the mastery only by dint of desperate fighting and great political sagacity. But finally they did establish their superiority, and founded a second great empire in Peru.

The history of the rise and progress of Inca power, as recorded by native

[1] Fray Ludovico Geronimo de Oré, a native of Guamanga, in Peru, was the author of *Rituale seu Manuale ac brevem formam administrandi sacramenta juxta ordinem S. Ecclesiæ Romanæ, cum translationibus in linguas provinciarum Peruanorum*, published at Naples in 1607.

[2] Cf. Note I, following this chapter.

[3] *Chucu* means a head-dress; *Huaman*, a falcon; *Huacra*, a horn.

historians in their *quipus*, and retailed to us by Spanish writers, is, on the whole, coherent and intelligible. Many blunders were inevitable in conveying the information from the mouths of natives to the Spanish inquirers, who understood the language imperfectly, and whose objects often were to reach foregone conclusions. But certain broad historical facts are brought out by a comparison of the different authorities, the succession of the last ten sovereigns is determined by a nearly complete consensus of evidence, and we can now relate the general features of the rise of Inca ascendency in Peru with a certain amount of confidence.

INCA MANCO CCAPAC.*

The Inca people were divided into small *ayllus*, or lineages, when Manco Ccapac advanced down the valley of the Vilcamayu, from Paccari-tampu, and forced the *ayllu* of Alcaviza and the *ayllu* of Antasayac to submit to his sway. He formed the nucleus of his power at Cuzco, the land of these conquered *ayllus*, and from this point his descendants slowly extended their dominion. The chiefs of the surrounding *ayllus*, called *Sinchi* (literally, "strong"), either submitted willingly to the Incas, or were subjugated. Sinchi Rocca, the son, and Lloque Yupanqui, the grandson, of Manco, filled up a swamp on the site of the present cathedral of Cuzco, planned out the

INCA YUPANQUI.†

* [After a cut in Marcoy's *South America*, i. 210 (also in *Tour du Monde*, 1863, p. 261), purporting to be drawn from a copy of the taffeta roll containing the pedigree of the Incas, which, in evidence of their claims, was sent by their descendants to the Spanish king in 1603. This genealogical record contained the likenesses of the successive Incas and their wives, and the original is said to have disappeared. Mr. Markham supposes this roll to have been the original of the portraits given in Herrera (see cut on p. 267 of the present volume); but they are not the same, if Marcoy's cuts are trustworthy. A set of likenesses appeared in Ulloa's *Relacion Histórica* (Madrid, 1748), iv. 604; and these were the originals of the series copied in the *Gentleman's Mag.*, 1751–1752, and thence are copied those in Ranking. These do not correspond with those given by Marcoy. See *post*, Vol. II., for a note on different series of portraits, and in the same volume, pp. 515, 516, are portraits of Atahualpa. A portrait of Manco Inca, killed 1546, is given in A. de Beauchamp's *Histoire de la Conquête du Pérou* (Paris, 1808). — Ed.]

† [After a cut in Marcoy, i. 214. — Ed.]

city,[1] and their reigns were mainly occupied in consolidating the small kingdom founded by their predecessor. Mayta Ccapac, the fourth Inca, was also occupied in consolidating his power round Cuzco; but his son, Ccapac Yupanqui, subdued the Quichuas to the westward, and extended his sway as far as the pass of Vilcañota, overlooking the Collao, or basin of Lake Titicaca. Inca Rocca, the next sovereign, made few conquests, devoting his attention to the foundation of schools, the organization of festivals and administrative government, and to the construction of public works. His son, named Yahuar-huaccac, appears to have been unfortunate. One authority says that he was surprised and killed, and all agree that his reign was disastrous. For seven generations the power and the admirable internal polity of the Incarial government had been gradually organized and consolidated within a limited area. The succeeding sovereigns were great conquerors, and their empire was rapidly extended to the vast area which it had reached when the Spaniards first appeared on the scene.

CUZCO.*

The son of Yahuar-huaccac assumed the name of the Deity, and called himself Uira-cocha.[2] Intervening in a war between the two principal chiefs of the Collas, named Cari and Zapaña, Uira-cocha defeated them in detail, and annexed the whole basin of Lake Titicaca to his dominions. He also conquered the lovely valley of Yucay, on the lower course of the Vilcamayu, whither he retired to end his days. The eldest son of Uira-cocha, named Urco, was incompetent or unworthy, and was either obliged to abdicate[3] in favor of his brother Yupanqui, the favorite hero of Inca history, or was slain.[4] It was a moment when the rising empire needed the services of her ablest sons. She was about to engage in a death-struggle with a neighbor

[1] [Ramusio's plan of Cuzco is given in Vol. II. p. 554, with references (p. 556) to other plans and descriptions; to which may be added an archæological examination by Wiener, in the *Bull. de la Soc. de Géog. de Paris*, Oct., 1879, and in his *Pérou et Bolivie*, with an enlarged plan of the town, showing the regions of different architecture; accounts in Marcoy's *Voyage à travers l'Amérique du Sud* (Paris, 1869; or Eng. transl. i. 174), and in Nadaillac's *L'Amérique préhistorique*, and by Squier in his *Peru*, and in his *Remarques sur la Géographie du Pérou*, p. 20. — Ed.]

[2] It is related by Betanzos that one day this Inca appeared before his people with a very joyful countenance. When they asked him the cause of his joy, he replied that Uira-cocha Pachayachachic had spoken to him in a dream that night. Then all the people rose up and saluted him as Viracocha Inca, which is as much as to say, — "King and God." From that time he was so called. Garcilasso gives a different version of the same tradition, in which he confuses Viracocha with his son.

[3] Cieza de Leon, ii. 138–44.

[4] Salcamayhua, 91.

* [One of the cuts which did service in the Antwerp editions of Cieza de Leon. There are various views in Squier's *Peru*, pp. 427–445. — Ed.]

as powerful and as civilized as herself. The kingdom of the Chancas, commencing on the banks of the Apurimac, extended far to the east and north, including many of the richest valleys of the Andes. Their warlike king, Uscavilca, had already subdued the Quichuas, who dwelt in the upper valleys of the Apurimac tributaries to the southward, and was advancing on Cuzco, when Yupanqui pushed aside the imbecile Urco, and seized the helm.

WARRIORS OF THE INCA PERIOD.*

The fate of the Incas was hanging on a thread. The story is one of thrilling interest as told in the pages of Betanzos, but all authorities dwell more or less on this famous Chanca war. The decisive battle was fought outside the Huaca-puncu, the sacred gate of Cuzco. The result was long doubtful. Suddenly, as the shades of evening were closing over the Yahuar-pampa, — "the field of blood," — a fresh army fell upon the right flank of the Chanca host, and the Incas won a great victory. So unexpected was this onslaught that the very stones on the mountain sides were believed to have been turned into men. It was the armed array of the insurgent Quichuas who had come by forced marches to the help of their old masters. The memory of this great struggle was fresh in men's minds when the Spaniards arrived, and as the new conquerors passed over the battlefield, on their way to Cuzco, they saw the stuffed skins of the vanquished Chancas set up as memorials by the roadside.

The subjugation of the Chancas, with their allies the Huancas, led to a vast extension of the Inca empire, which now reached to the shores of the Pacific ; and the last years of Yupanqui were passed in the conquest of the alien coast nation, ruled over by a sovereign known as the Chimu. Thus the reign of the Inca Yupanqui marks a great epoch. He beat down all rivals, and converted the Cuzco kingdom into a vast empire. He received the name of Pachacutec, or "he who changes the world," a name which, according to Montesinos, had on eight previous occasions been conferred upon sovereigns of the more ancient dynasties.

Tupac Inca Yupanqui, the son and successor of Pachacutec, completed

* [After a cut given by Ruge, and showing figures from an old Peruvian painting. — Ed.]

the subjugation of the coast valleys, extended his conquests beyond Quito on the north and to Chile as far as the river Maule in the south, besides penetrating far into the eastern forests.

Huayna Ccapac, the son of Tupac Inca Yupanqui, completed and consolidated the conquests of his father. He traversed the valleys of the coast, penetrated to the southern limit of Chile, and fought a memorable battle on the banks of the "lake of blood" (Yahuar-cocha), near the northern frontier of Quito. After a long reign,[1] the last years of which were passed in Quito, Huayna Ccapac died in November, 1525. His eldest legitimate son, named Huascar, succeeded him at Cuzco. But Atahualpa, his father's favorite, was at Quito with the most experienced generals. Haughty messages passed between the brothers, which were followed by war. Huascar's armies were defeated in detail, and eventually the generals of Atahualpa took the legitimate Inca prisoner, entered Cuzco, and massacred the family and adherents of Huascar.[2] The successful aspirant to the throne was on his way to Cuzco, in the wake of his generals, when he encountered Pizarro and the Spanish invaders at Caxamarca. This war of succession would not, it is probable, have led to any revolutionary change in the general policy of the empire. Atahualpa would have established his power and continued to rule, just as his ancestor Pachacutec did, after the dethronement of his brother Urco.[3]

The succession of the Incas from Manco Ccapac to Atahualpa was evidently well known to the Amautas, or learned men of the empire, and was recorded in their *quipus* with precision, together with less certain materials respecting the more ancient dynasties. Many blunders were committed by the Spanish inquirers in putting down the historical information received from the Amautas, but on the whole there is general concurrence among them.[4] Practically the Spanish authorities agree, and it is clear that the

[1] Blas Valera says 42, Balboa 33, years.

[2] [The ruins of Atahualpa's palace are figured in Wiener's *Pérou et Bolivie*, and in Cte. de Gabriac's *Promenade à travers l'Amérique du Sud* (Paris, 1868), p. 196. — Ed.]

[3] The meanings of the names of these Incas are significant. Manco and Rocca appear to be proper names without any clear etymology. The rest refer to mental attributes, or else to some personal peculiarity. Sinchi means "strong." Lloque is "left-handed." Yupanqui is the second person of the future tense of a verb, and signifies "you will count." Garcilasso interprets it as one who will count as wise, virtuous, and powerful. Ccapac is rich; that is, rich in all virtues and attributes of a prince. Mayta is an adverb, "where;" and Salcamayhua says that the constant cry and prayer of this Inca was, "Where art thou, O God?" because he was constantly seeking his Creator. Yahuar-huaccac means "weeping blood," probably in allusion to some malady from which he suffered. Pachacutec has already been explained. Tupac is a word signifying royal splendor, and Huayna means "youth." Huascar is "a chain," in allusion to a golden chain said to have been made in his honor, and held by the dancers at the festival of his birth. The meaning of Atahualpa has been much disputed. *Hualpa* certainly means any large game fowl. *Hualpani* is to create. *Atau* is "chance," or "the fortune of war." Garcilasso, who is always opposed to derivations, maintains that Atahualpa was a proper name without special meaning, and that Hualpa, as a word for a fowl, is derived from it, because the boys in the streets, when imitating cock-crowing, used the word Atahualpa. But Hualpa formed part of the name of many scions of the Inca family long before the time of Atahualpa.

[4] All authorities agree that Manco Ccapac was the first Inca, although Montesinos places him far back at the head of the Pirhua dynasty, and all agree respecting the second, Sinchi

native annalists possessed a single record, while the apparent discrepancies are due to blunders of the Spanish transcribers. The twelve Incas from Manco Ccapac to Huascar may be received as historical personages whose deeds were had in memory at the time of the Spanish invasion, and were narrated to those among the conquerors who sought for information from the Amautas.

A. D.	A. D.
1240 — Manco Ccapac.	1360 — Yahuar-huaccac.
1260 — Sinchi Rocca.	1380 — Uira-cocha.
1280 — Lloque Yupanqui.	1400 — Pachacutec Yupanqui.
1300 — Mayta Ccapac.	1440 — Tupac Yupanqui.
1320 — Ccapac Yupanqui.	1480 — Huayna Ccapac.
1340 — Inca Rocca.	1523 — Inti Cusi Hualpa, or Huascar.

The religion of the Incas consisted in the worship of the supreme being of the earlier dynasties, the Illa Ticsi Uira-cocha of the Pirhuas. This simple faith was overlaid by a vast mass of superstition, represented by the cult of ancestors and the cult of natural objects. To this was superadded the belief in the ideals or souls of all animated things, which ruled and guided them, and to which men might pray for help. The exact nature of this belief in ideals, as it presented itself to the people themselves, is not at all clear. It prevailed among the uneducated. Probably it was the idea to which dreams give rise, — the idea of a double nature, of a tangible and a phantom being, the latter mysterious and powerful, and to be propitiated. The belief in this double being was extended to all animated nature, for even the crops had their spiritual doubles, which it was necessary to worship and propitiate.

But the religion of the Incas and of learned men, or Amautas, was a worship of the Supreme Cause of all things, the ancient God of the Titicaca myth, combined with veneration for the sun [1] as the ancestor of the reigning dynasty, for the other heavenly bodies, and for the *malqui*, or remains of their forefathers. This feeling of veneration for the sun, closely connected with the beneficent work of the venerated object as displayed in

Rocca. Lloque Yupanqui, with various spellings, has the unanimous vote of all authorities except Acosta, who calls him "Iaguarhuarque." But Acosta's list is incomplete. Respecting Mayta Ccapac and Ccapac Yupanqui, all are agreed except Betanzos, who transposes them by an evident slip of memory. Touching Inca Rocca all are agreed, though Montesinos has Sinchi for Inca, and all agree as to Yahuar-huaccac. It is true that Cieza de Leon and Herrera call him Inca Yupanqui, but this is explained by Salcamayhua when he gives the full name, — Yahuar-huaccac Inca Yupanqui. All agree as to Uira-cocha. As to his successor, Betanzos, Cieza de Leon, Fernandez, Herrera, Salcamayhua, and Balboa mention the short reign of the deposed Urco. Cieza de Leon and Betanzos give Yupanqui as the name of Urco's brother; all other authorities have Pachacutec. The discrepancy is explained by his names having been Yupanqui Pachacutec. This also accounts for Garcilasso de la Vega and Santillan having made Pachacutec and Yupanqui into two Incas, father and son. Betanzos also interpolates a Yamque Yupanqui. All are agreed with regard to Tupac Inca Yupanqui, Huayna Ccapac, Huascar, and Atahualpa. [There is another comparison of the different lists in Wiener, *L'Empire des Incas*, p. 53. — ED.]

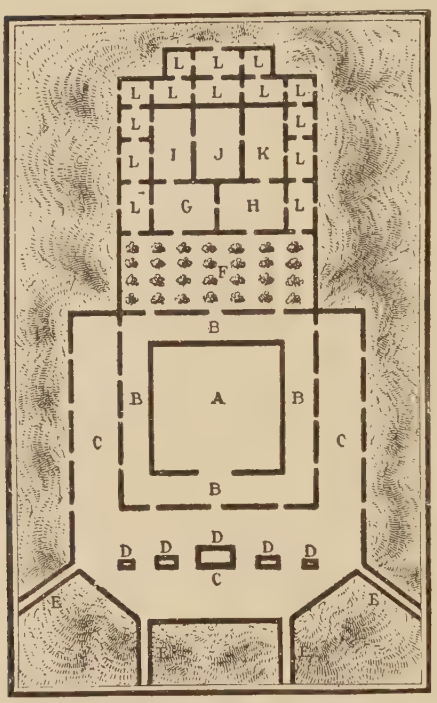
[1] [See an early cut of this sun-worship in Vol. II. p. 551. — ED.]

the course of the seasons, led to the growth of an elaborate ritual and to the celebration of periodical festivals.

The weight of evidence is decisively in the direction of a belief on the part of the Incas that a Supreme Being existed, which the sun must obey, as well as all other parts of the universe. This subordination of the sun to the Creator of all things was inculcated by successive Incas. Molina says, "They did not know the sun as their Creator, but as created by the Creator." Salcamayhua tells us how the Inca Mayta Ccapac taught that the sun and moon were made for the service of men, and that the chief of the Collas, addressing the Inca Uira-cocha, exclaimed, "Thou, O powerful lord of Cuzco, dost worship the teacher of the universe, while I, the chief of the Collas, worship the Sun." The evidence on the subject of the religion of the Incas, collected by the Viceroy Toledo, showed that they worshipped the Creator of all things, though they also venerated the sun; and Montesinos mentions an edict of the Inca Pachacutec, promulgated with the object of enforcing the worship of the Supreme God above all other deities. The speech of Tupac Inca Yupanqui, showing that the sun was not God, but was obeying laws ordained by God, is recorded by Acosta, Blas Valera, and Balboa, and was evidently deeply impressed on the minds of their Inca informers. This Inca compared the sun to a tethered beast, which always makes the same round; or to a dart, which goes where it is sent, and not where it wishes. The prayers from the Inca ritual, given by Molina, are addressed to the god Ticsi Uiracocha; the Sun, Moon, and Thunder being occasionally invoked in conjunction with the principal deity.

The worship of this creating God, the Dweller in Space, the Teacher and Ruler of the Universe, was, then, the religion of the Incas which had been inherited from their distant ancestry of the cyclopean age. Around this primitive cult had grown up a supplemental worship of creatures created by the Deity, such as the heavenly bodies, and of objects supposed to represent the first ancestors of *ayllus*, or tribes, as well as of the prototypes of things on whom man's welfare depended, such as flocks and animals of the chase, fruit and corn. It has been asserted that the Deity, the Uira-cocha himself, did not generally receive worship, and that there was only one temple in honor of God throughout the empire, at a place called Pachacamac, on the coast. But this is clearly a mistake. The great temple at Cuzco, with its gorgeous display of riches, was called the "Ccuri-cancha Pachayachachicpa huasin," which means "the place of gold, the abode of the Teacher of the Universe." An elliptical plate of gold was fixed on the wall to represent the Deity, flanked on either side by metal representations of his creatures, the Sun and Moon. The chief festival in the middle of the year, called Ccapac Raymi, was instituted in honor of the supreme Creator, and when, from time to time, his worship began to be neglected by the people, who were apt to run after the numerous local deities, it was again and again enforced by their more enlightened rulers. There were Ccuri-canchas

for the service of God, at Vilca and in other centres of vice-regal rule, besides the grand fane of Cuzco.[1]



TEMPLE OF THE SUN.*

Although the first and principal invocations were addressed to the Creator, prayers were also offered up to the Sun and Moon, to the Thunder, and to ancestors who were called upon to intercede with the Deity.[2] The latter worship formed a very distinctive feature in the religious observances of nearly all the Incarial tribes. The *Paccarina*, or forefather of the *ayllu*, or lineage, was often some natural object converted into a *huaca*, or deity. The *Paccarina* of the Inca family was the Sun, with his sister and spouse, the Moon. A vast hierarchy was set apart to conduct the ceremonies connected with their worship, and hundreds of virgins, called *Aclla-cuna*, were secluded and devoted to duties relating to the observances in the Sun temples. Worship was also offered to the actual bodies of the ancestors, called *malqui*, which were preserved with the greatest care, in caves called *machay*. On solemn festivals each *ayllu* assembled with its *malqui*. The bodies of the Incas were all preserved, clothed as when alive, and surrounded by their special furniture and utensils. Three of these Inca mummies, with two mummies of queens, were discovered by Polo de Ondegardo, then corregidor of Cuzco, in 1559, and were sent by him to Lima for interment. Those who saw them[3] reported that they were so well preserved that they appeared to be alive; that they were in a sitting posture; that the eyes were

[1] At Pachacamac there was a temple to the coast deity, called locally Pachacamac, and another to the sun; but none to the supreme Creator, one of whose epithets was Pachacamac.

[2] Spanish authors mention a being called *Supay*, which they say was the devil. *Supay*, as an evil spirit, also occurs in the drama of Ollantay. It may have been some local *huaca*, but no devil as such, entered into the religious belief of the Incas.

[3] Acosta, Polo de Ondegardo, Garcilasso de la Vega.

* [After a cut in Marcoy, i. p. 234, where it is said to be drawn from existing remains and printed and manuscript authorities. The modern structure of the convent of Santo Domingo, built in 1534, is at A, which contains in its construction some remains of the walls of the older edifice. B is a cloister. C, an outer court. D, fountains for purification. E are streets leading to the great square of Cuzco. F, the garden where golden flowers were once placed; now used as a kitchen garden. G, the chapel dedicated to the moon. H, chapel dedicated to Venus and the Milky Way. I, chapel dedicated to thunder and lightning. J, chapel dedicated to the rainbow. K, council hall of the grand pontiff and priests of the sun. L, the apartments of the priests and servants. See the view of the temple from Montanus in Vol. II. p. 555, and a modern view in Wiener's *Pérou et Bolivie*, p. 318. Other plans and views are in Squier's *Peru*, pp. 430–445. — Ed.]

made of gold, and that they were arrayed in the insignia of their rank.[1] The *Paccarina*, or founder of the family, and the *malquis*, or mummies of ancestors, thus formed the objects of a distinct belief and religion, based undoubtedly on the conviction that every human being has a spiritual as well as a corporeal existence; that the former is immortal, and that it is represented by the *malqui*. The appearance of the departed in dreams and visions was not an unreasonable ground for this belief, which certainly was

ZODIAC OF GOLD FOUND AT CUZCO.*

the most deeply rooted of all the religious ideas of the Peruvian people. The *paccarina*, or ancestral deities, were innumerable. There was one or more that received worship in every *tribe*, and was represented by a rock, or some other natural object. Many were believed to be oracles. Some, such as *Catequilla*, or *Apu-catequilla*,[2] the oracle of the Conchucu tribe, have

[1] The mummies were those of Incas Uira-cocha, Tupac Yupanqui, and Huayna Ccapac; of Mama Runtu (wife of Uira-cocha) and Mama Ocllo (wife of Tupac Yupanqui).

[2] Mentioned by Calancha (471) and Arriaga as an oracle at the village of Tauca, in Conchucos. Brinton has built up a myth which he credits to the whole Peruvian people, on the strength of a meaning applied to the word *Catequilla*, which is erroneous. It is exactly the same grammatical error that those etymologists fell into who thought that *Uira-cocha* signified "foam of the sea." (*Myths of the New World*, 154.)

* [After a drawing by Mr. Markham of the plate itself, made at Lima in 1853. Mr. Markham's drawing is reproduced in Bollaert's *Antiquarian Researches*, p. 146. The disk is 5 3-10 inches in diameter. The signs in the outer ring are supposed to represent the months. — ED.]

been brought into undue prominence through being mentioned by Spanish writers.

Religious ceremonials were closely connected with the daily life of the people, and especially with the course of the seasons and the succession of months, as they affected the operations of agriculture. It was important to fix the equinoxes and solstices, and astronomical knowledge was a part of the priestly office. There were names for many of the stars; their motions were watched as well as those of the sun and moon; and though a record of the extent of the astronomical knowledge of the Incas has not been preserved, it is certain that they watched the time of the solstices and equinoxes with great care, and that they distinguished between the lunar and solar years. Pillars were erected to determine the time of the solstices, eight on the east and eight on the west side of Cuzco, in double rows, four and four, two low between two higher ones, twenty feet apart. They were called *Sucanca*, from *suca*, a ridge or furrow, the alternate light and shade between the pillars appearing like furrows. A stone column in the centre of a level platform, called *Inti-huatana*, was used to ascertain the time of the equinoxes. A line was drawn across the platform from east to west, and watch was kept to observe when the shadow of the pillar was on this line from sunrise to sunset, and there was no shadow at noon. The principal *Inti-huatana* was in the square before the great temple at Cuzco; but there are several others in different parts of Peru. The most perfect of these observatories is at Pissac, in the valley of Vilcamayu.[1] There is another at Ollantay-tampu, a fourth near Abancay, and a fifth at Sillustani in the Collao.

There is reason to believe that the Incas used a zodiac with twelve signs, corresponding with the months of their solar year. The gold plates which they wore on their breasts were stamped with features representing the sun, surrounded by a border of what are probably either zodiacal signs or signs for the months. Whether the ecliptic, or *huatana*, was thus divided or not, it is certain that the sun's motion was observed with great care, and that the calendar was thus fixed with some approach to accuracy.[2] The year, or *Huata*, was divided into twelve *Quilla*, or moon revolutions, and these were made to correspond with the solar year by adding five days, which were divided among the twelve months. A further correction was made every fourth year. Solar observations were taken and recorded every month.

The year commenced on the 22d of June, with the winter solstice, and there were four great festivals at the occurrence of the solstices and equinoxes.[3]

[1] A very interesting account of it, with a sketch, is given by Squier, p. 524.

[2] *Huatana* means a halter, from *huatani*, to seize; hence the tying up or encircling of the sun.

[3] Authorities differ respecting the names of the months, and probably some months had more than one name. But the most accurate list, and that which is most in agreement with all the others, is the one adopted by the first Council of Lima, and given by Calancha. It is as follows:—

1. *Yntip Raymi* (22 June–22 July), Festival of the Winter Solstice, or *Raymi*.
2. Chahuarquiz (22 July–22 Aug.), Season of ploughing.
3. Yapa-quiz (22 Aug.–22 Sept.), Season of sowing.

The celebrations of the solar year and of the seasons, in their bearings on agriculture, were identical with the chief religious observances. The Raymi, or festival of the winter solstice, in the first month, when the granaries were filled after harvest, was established in special honor of the Sun. Sacrifices of llamas and lambs, and of the first-fruits of the earth, were offered up to the images of the Supreme Being, of the Sun, and of Thunder, which were placed in the open space in front of the great temple; as well as to the *huaca*, or stone representing the brother of Manco Ccapac, on the hill of Huanacauri. There was also a procession of the priests and people as far as the pass of Vilcañota, leading into the basin of Lake Titicaca, sacrifices being offered up at various spots on the road. The sacrifices were accompanied by prayers, and concluded with songs, called *huayllina*, and dancing. Then followed the ploughing month, when it is said that the Inca himself opened the season by ploughing a furrow with a golden plough in the field behind the Colcampata palace, on the height above Cuzco.

The question here arises whether human sacrifices were offered up, in the Inca ritual. This has been stated by Molina, Cieza de Leon, Montesinos, Balboa, Ondegardo, and Acosta, and indignantly denied by Garcilasso de la Vega. Cieza de Leon admits that there were occasional human sacrifices, but adds that their numbers and the frequency of such offerings have been grossly exaggerated by the Spaniards. If the sacrifices had been offered under the idea of atonement or expiation, it might well be expected that human sacrifices would be included. Under such ideas, men offered up what they valued most, just as Abraham was prepared to sacrifice his son, as Jephthah dedicated his daughter as a burnt-offering to Jehovah, and as the king of Moab sacrificed his eldest son to Chemosh.[1] But, except in the Situa, when the idea was to efface sins by washing, the sacrifices of the Incas were offerings of thanksgiving, not of expiation or atonement. The mistake of the five writers who supposed that the Incas offered human sacrifices was due to their ignorance of the language.[2] The perpetration of human

4. *Ccoya Raymi* (22 Sept.–22 Oct.), Festival of the Spring Equinox. *Situa.*
5. Uma Raymi (22 Oct.–22 Nov.), Season of brewing.
6. Ayamarca (22 Nov.–22 Dec.), Commemoration of the dead.
7. *Ccapac Raymi* (22 Dec.–22 Jan.), Festival of the Summer Solstice. *Huaraca.*
8. Camay (22 Jan.–22 Feb.), Season of exercises.
9. Hatun-poccoy (22 Feb.–22 March), Season of ripening.
10. *Pacha-poccoy* (22 March–22 April), Festival of Autumn Equinox. *Mosoc Nina.*
11. Ayrihua (22 April–22 May), Beginning of harvest.
12. Aymuray (22 May–22 June), Harvesting month.

The other authorities for the Inca months are Betanzos, Molina, Montesinos, Fernandez, and Ramos. Acosta also gives an incomplete list.

[1] Judges xii. 39; 2 Kings iii. 27.

[2] The sacrifices were called *runa*, *yuyac*, and *huahua*. The Spaniards thought that *runa* and *yuyac* signified men, and *huahua* children. This was not the case when speaking of sacrificial victims. *Runa* was applied to a male sacrifice, *huahua* to the lambs, and *yuyac* signified an adult or full-grown animal. The sacrificial animals were also called after the names of those who offered them, which was another cause of erroneous assumptions by Spanish writers. There was a law strictly prohibiting human sacrifices among the conquered tribes; and the statement that servants were sacrificed at the obsequies of their masters is disproved by the fact, mentioned by the anonymous Jesuit, that in none of the burial-places opened by the Spaniards in search of treasure were any human bones found, except those of the buried lord himself.

sacrifice was opposed to the religious ideas of the ancient Peruvians, and formed no part of their ceremonial worship. Their ritual was almost exclusively devoted to thanksgiving and rejoicings over the beneficence of their Deity. The notion of expiation formed no part of their creed, while the destruction involved in such a system was opposed to their economic and carefully regulated civil polity.[1]

The second great festival, called Situa, was celebrated at the vernal equinox. This was the commencement of the rainy season, when sickness prevailed, and the object of the ceremony was to pray to the Creator to drive diseases and evils from the land. In the centre of the great square of Cuzco a body of four hundred warriors was assembled, fully armed for war. One hundred faced towards the Chincha-suyu road, one hundred faced towards Anti-suyu, one hundred towards Colla-suyu, and one hundred towards Cunti-suyu, — the four great divisions of the empire. The Inca and the high-priest, with their attendants, then came from the temple, and shouted, "Go forth all evils!" On the instant the warriors ran at great speed towards the four quarters, shouting the same sentence as they went, until they each came to another party, which took up the cry, and the last parties reached the banks of great rivers, the Apurimac or Vilcamayu, where they bathed and washed their arms. The rivers were supposed to carry the evils away to the ocean. As the warriors ran through the streets of Cuzco, all the people came to their doors, shaking their clothes, and shouting, "Let the evils be gone!" In the evening they all bathed; then they lighted great torches of straw, called *pancurcu,* and, marching in procession out of the city, they threw them into the rivers, believing that thus nocturnal evils were banished. At night, each family partook of a supper consisting of pudding made of

[1] Prescott (I. p. 98, note) accepted the statement that human sacrifices were offered by the Incas, because six authorities, Sarmiento, Cieza de Leon, Montesinos, Balboa, Ondegardo, and Acosta — outnumbered the single authority on the other side, Garcilasso de la Vega, who, moreover, was believed to be prejudiced owing to his relationship to the Incas. Sarmiento and Cieza de Leon are one and the same, so that the number of authorities for human sacrifices is reduced to five. Cieza de Leon, Montesinos, and Balboa adopted the belief that human sacrifices were offered up, through a misunderstanding of the words *yuyac* and *huahua.* Acosta had little or no acquaintance with the language, as is proved by the numerous linguistic blunders in his work. Ondegardo wrote at a time when he scarcely knew the language, and had no interpreters; for it was in 1554, when he was judge at Cuzco. At that time all the annalists and old men had fled into the forests, because of the insurrection of Francisco Hernandez Giron.

The authorities who deny the practice are numerous and important. These are Francisco de Chaves, one of the best and most able of the original conquerors; Juan de Oliva; the Licentiate Alvarez; Fray Marcos Jofre; the Licentiate Falcon, in his *Apologia pro Indis;* Melchior Hernandez, in his dictionary, under the words *harpay* and *huahua;* the anonymous Jesuit in his most valuable narrative; and Garcilasso de la Vega. These eight authorities outweigh the five quoted by Prescott, both as regards number and importance. So that the evidence against human sacrifices is conclusive. The *Quipus,* as the anonymous Jesuit tells us, also prove that there was a law prohibiting human sacrifices.

The assertion that 200 children and 1,000 men were sacrificed at the coronation of Huayua Ccapac was made; but these "*huahuas*" were not children of men, but young lambs, which are called children; and the "*yuyac*" and "*runa*" were not men, but adult llamas. [Mr. Markham has elsewhere collated the authorities on this point (*Royal Commentaries,* i. 139). Cf. Bollaert's *Antiq. Researches,* p. 124; and Alphonse Castaing on "Les Fêtes, Offrandes et Sacrifices dans l'Antiquité Peruvienne," in the *Archives de la Société Américaine de France,* n. s., iii. 239. — Ed.]

coarsely ground maize, called *sancu*, which was also smeared over their faces and the lintels of their doorways, then washed off and thrown into the rivers with the cry, "May we be free from sickness, and may no maladies enter our houses!" The *huacas* and *malquis* were also bathed at the feast of Situa. In the following days all the *malquis* were paraded, and there were sacrifices, with feasting and dancing. A stone fountain, plated with gold, stood in the great square of Cuzco, and the Inca, on this and other solemn festivals, poured *chicha* into it from a golden vase, which was conducted by subterranean pipes to the temple.

The third great festival at the summer solstice, called *Huaracu*, was the occasion on which the youths of the empire were admitted to a rank equivalent to knighthood, after passing through a severe ordeal. The Inca and his court were assembled in front of the temple. Thither the youths were conducted by their relations, with heads closely shorn, and attired in shirts of fine yellow wool edged with black, and white mantles fastened round their necks by woollen cords with red tassels. They made their reverences to the Inca, offered up prayers, and each presented a llama for sacrifice.[1] Proceeding thence to the hill of Huanacauri, where the venerated *huaca* to Ayar Uchu was erected, they there received *huaras*, or breeches made of aloe fibres, from the priest. This completed their manly attire, and they returned home to prepare for the ordeal. A few days afterwards they were assembled in the great square, received a spear, called *yauri*, and *usutas* or sandals, and were severely whipped to prove their endurance. The young candidates were then sent forth to pass the night in a desert about a league from Cuzco. Next day they had to run a race. At the farther end of the course young girls were stationed, called *ñusta-calli-sapa*,[2] with jars of chicha, who cried, "Come quickly, youths, for we are waiting!" but the course was a long one, and many fell before they reached the goal. They also had to rival each other in assaults and feats of arms. Finally their ears were bored, and they received ear-pieces of gold and other marks of distinction from the Inca. The last ceremony was that of bathing in the fountain called Calli-puquio. About eight hundred youths annually passed through this ordeal, and became adult warriors, at Cuzco, and similar ceremonies were performed in all the provinces of the empire.

In the month following on the summer solstice, there was a curious religious ceremony known as the water sacrifice. The cinders and ashes of all the numerous sacrifices throughout the year were preserved. Dams were constructed across the rivers which flow through Cuzco, in order that the water might rush down with great force when they were taken away. Prayers and sacrifices were offered up, and then a little after sunset all the ashes were thrown into the rivers and the dams were removed. Then the burnt-sacrifices were hurried down with the stream, closely followed by

[1] The sacrificial llamas bore the names of the youths who presented them. Hence the Spanish writers, with little or no knowledge of the language, assumed that the youths themselves were the victims. (See *ante*, p. 237.)

[2] *Ñusta*, princess; *calli*, valorous; *sapa*, alone, unrivalled.

crowds of people on either bank, with blazing torches, as far as the bridge at Ollantay-tampu. There two bags of coca were offered up by being hurled into the river, and thence the sacrifices were allowed to flow onwards to the sea. This curious ceremony seems to have been intended not only as a thank-offering to the Deity, but as an acknowledgment of his omnipresence. As the offerings flowed with the stream, they knew not whither, yet went to Him, so his pervading spirit was everywhere, alike in parts unknown as in the visible world of the Incas.

A sacred fire was kept alive throughout the year by the virgins of the sun, and the ceremony of its annual renewal at the autumnal equinox was the fourth great festival, called *Mosoc-nina*, or the "new fire." Fire was produced by collecting the sun's rays on a burnished metal mirror, and the ceremony was the occasion of prayers and sacrifices. The year ended with the rejoicing of the harvest months, accompanied by songs, dances, and other festivities.

Besides the periodical festivals, there were also religious observances which entered into the life of each family. Every household had one or more *lares*, called *Conopa*, representing maize, fruit, a llama, or other object on which its welfare depended. The belief in divination and soothsaying, the practice of fasting followed by confession, and worship of the family *malqui*, all gave employment to the priesthood.

The complicated religious ceremonies connected with the periodical festivals, the daily worship, and the requirements of private families gave rise to the growth of a very numerous caste of priests and diviners. The pope of this hierarchy, the chief pontiff, was called *Villac Umu*, words meaning "The head which gives counsel," he who repeats to the people the utterances of the Deity. He was the most learned and virtuous of the priestly caste, always a member of the reigning family, and next in rank to the Inca. The *Villcas*, equivalent to the bishops of a Christian hierarchy, were the chief priests in the provinces, and during the greatest extension of the empire they numbered ten. The ordinary ministers of religion were divided into sacrificers, worshippers and confessors, diviners, and recluses.[1] It was

[1] Of the first class were the *Tarpuntay*, or sacrificing priests, and the *Nacac*, who cut up the victims and provided the offerings, whether *harpay* or bloody sacrifices, *haspay* or bloodless sacrifices of flesh, or *cocuy*, oblations of corn, fruit, or coca. Molina mentions a custom called *Ccapac-cocha* or *Cacha-huaca*, being the distribution of sacrifices. An enormous tribute came to Cuzco annually for sacrificial purposes, and was thence distributed by the Inca, for the worship of every *huaca* in the empire. The different sacrifices were sent from Cuzco in all directions for delivery to the priests of the numerous *huacas*. The ministering priests were called *Huacap Villac* when they had charge of a special idol, *Huacap Rimachi* or *Huatuc* when they received utterances from a deity while in a state of ecstatic frenzy called *utirayay*, and *Ychurichuc* when they received confessions and ministered in private families. The soothsayers were a very numerous class. The *Hamurpa* examined the entrails of sacrifices, and divined by the flight of birds. The *Llayca*, *Achacuc*, *Huatuc*, and *Uira-piricuc* were soothsayers of various grades. The *Socyac* divined by maize heaps, the *Pacchacuc* by the feet of a large hairy spider, the *Llaychunca* by odds and evens. The recluses were not only *Aclla-cuna*, or virgins congregated in temples under the charge of matrons called *Mama-cuna*. There were also hermits who meditated in solitary places, and appear to have been under a rule, with an abbot called *Tucricac*, and younger men serving a novitiate called *Huamac*. These *Huancaquilli*, or hermits, took vows of

indeed inevitable that, with a complicated ritual and a gorgeous ceremonial worship, a populous class of priests and their assistants, of numerous grades and callings, should come into existence.[1]

But the intellectual movement and vigor of the Incas were not confined to the priesthood. The Amautas or learned men, the poets and reciters of history, the musical and dramatic composers, the Quipu-camayoc, or recorders and accountants, were not necessarily, nor indeed generally, of the priestly caste. It is probable that the Amautas, or men of learning, formed a separate caste devoted to the cultivation of literature and the extension of the language. Our knowledge of their progress and of the character of their traditions and poetic culture is very limited, owing to the destruction of records and the loss of oral testimony. The language has been preserved, and that will tell us much; but only a few literary compositions have been saved from the wreck of the Inca empire. Quichua was the name given to the general language of the Incas by Friar Domingo de San Tomas, the first Spaniard who studied it grammatically, possibly owing to his having acquired it from people belonging to the Quichua tribe. The name continued to be used, and has been generally adopted.[2] Garcilasso de la Vega speaks of a separate court language of the Incas, but the eleven words he gives as belonging to it are ordinary Quichua words, and I concur with Hervas and William von Humboldt in the conclusion that this court language

chastity (*titu*), obedience (*Huñicui*), poverty (*uscacuy*), and penance (*villullery*).

[1] [The general works on the Inca civilization necessarily touch these points of their religious customs, and Mr. Markham's volume on the *Rites and Laws of the Incas* is a prime source of information. Hawk's translation of Rivero and Von Tschudi (p. 151) gives references; but special mention may be made of Müller's *Geschichte der Amerikanischen Urreligionen;* Castaing's *Les Système religieux dans l'Antiquité peruvienne*, in the *Archives de la Soc. Amér. de France*, n. s., iii. 86, 145; Tylor's *Primitive Culture;* Brinton's *Myths of the New World;* and Albert Réville's *Lectures on the origin and growth of religion as illustrated by the native religions of Mexico and Peru. Delivered at Oxford and London, in April and May, 1884. Translated by Philip H. Wicksteed* (London, 1884. Hibbart lectures). — Ed.]

[2] The Quichua language was spoken over a vast area of the Andean region of South America. The dialects only differ slightly, and even the language of the Collas, called by the Spaniards Aymara, is identical as regards the grammatical structure, while a clear majority of the words are the same. The general language of Peru belongs to that American group of languages which has been called agglutinative by William von Humboldt. These languages form new words by a process of junction which is much more developed in them than in any of the forms of speech in the Old World. They also have exclusive and inclusive plurals, and transitional forms of the verb combined with pronominal suffixes which are peculiar to them. In these respects the Quichua is purely an American language, and in spite of the resemblances in the sounds of some words, which have been diligently collected by Lopez (*Les Races Aryennes du Pérou*, par Vicente F. Lopez, Paris, 1871) and Ellis (*Peruvia Scythica*, by Robert Ellis, B. D., London, 1875), no connection, either as regards grammar or vocabulary, has been satisfactorily established between the speech of the Incas and any language of the Old World. Quichua is a noble language, with a most extensive vocabulary, rich in forms of the plural number, which argue a very clear conception of the idea of plurality; rich in verbal conjugations; rich in the power of forming compound nouns; rich in varied expressions to denote abstract ideas; rich in words for relationships which are wanting in the Old World idioms; and rich, above all, in synonyms: so that it was an efficient vehicle wherewith to clothe the thoughts and ideas of a people advanced in civilization.

973

of Garcilasso had no real existence.[1] It is not mentioned by any other authority.

It was the custom for the Yaravecs or Bards to recite the deeds of former Incas on public occasions, and these rhythmical narratives were orally preserved and handed down by the learned men. Cieza de Leon tells us that "by this plan, from the mouths of one generation the succeeding one was taught, and they could relate what took place five hundred years ago as if only ten years had passed. This was the order that was taken to prevent the great events of the empire from falling into oblivion." These historical recitations and songs must have formed the most important part of Inca literature. One specimen of imaginative poetry has been preserved by Blas Valero, in which the thunder, followed by rain, is likened to a brother breaking his sister's pitcher; just as in the Scandinavian mythology the legend which is the original source of our nursery rhyme of Jack and Jill employs the same imagery. Pastoral duties are embodied in some of the later Quichuan dramatic literature, and numerous love songs and *yaravies*, or elegies, have been handed down orally, or preserved in old manuscripts. The dances were numerous and complicated, and the Incas had many musical instruments.[2] Dramatic representations, both of a tragic and comic character, were performed before the Inca court. The statement of Garcilasso de la Vega to this effect is supported by the independent evidence of Cieza de Leon and of Salcamayhua, and is placed beyond a doubt by the sentence of the judge, Areche, in 1781, who prohibited the celebration of these dramas by the Indians. Father Iteri also speaks of the "Quichua dramas transmitted to this day (1790) by an unbroken tradition." But only one such drama has been handed down to our own time. It is entitled Ollantay, and records an historical event of the time of Yupanqui Pachacutec. In its present form, as regards division into scenes and stage directions, it shows later Spanish manipulation. The question of its antiquity has been much discussed; but the final result is that Quichua scholars believe most of its dialogues and speeches and all the songs to be remnants of the Inca period.

The system of record by the use of *quipus*, or knots, was primarily a method of numeration and of keeping accounts. To cords of various colors smaller lines were attached in the form of fringe, on which there were knots in an almost infinite variety of combination. The *Quipu-camayoc*, or accountant, could by this means keep records under numerous heads, and preserve the accounts of the empire. The *quipus* represented a far better system of keeping accounts than the exchequer tallies which were used in England for the same purpose as late as the early part of the present century. But the question of the extent to which historical events could be

[1] Garcilasso, *Com. Real.*, i. lib. i. cap. 24, and lib. vii. cap. 1.

[2] Among several kinds of flutes were the *chayña*, made of cane, the *pincullu*, a small wooden flute, and the *pirutu*, of bone. They also had a stringed instrument called *tinya*, for accompanying their songs, a drum, and trumpets of several kinds, one made from a sea-shell.

recorded by this system of knots is a difficult one. We have the direct assertions of Montesinos, Salcamayhua, the anonymous Jesuit, Blas Valera, and others, that not only narratives, but songs, were preserved by means of the *quipus*. Von Tschudi believed that by dint of the uninterrupted studies of experts during several generations, the power of expression became developed more and more, and that eventually the art of the *Quipu-camayoc* reached a high state of perfection. It may reasonably be assumed that with some help from oral commentary, codes of laws, historical events, and even poems were preserved in the *quipus*. It was through this substitute for writing that Montesinos and the anonymous Jesuit received their lists of ancient dynasties, and Blas Valera distinctly says that the poem he has preserved was taken from *quipus*. Still it must have been rather a system of mnemonics than of complete record. Molina tells us that the events in the reigns of all the Incas, as well as early traditions, were represented by paintings on boards, in a temple near Cuzco, called *Poquen cancha*.

THE QUIPUS.*

The diviners used certain incantations to cure the sick, but the healing art among the Incas was really in the hands of learned men. Those *Amautas* who devoted themselves to the study of medicine had, as Acosta bears testimony, a knowledge of the properties of many plants. The febrifuge virtues of the precious *quinquina* were, it is true, unknown, or only locally known. But the *Amautas* used plants with tonic properties for curing

* [Following a sketch in Rivero and Tschudi, as reproduced by Helps. It shows a quipu found in an ancient cemetery near Pachacamac. There are other cuts in Wiener's *Pérou et Bolivie*, p. 777; Tylor's *Early Hist. Mankind*, 156; Kingsborough's *Mexico*, vol. iv.; Silvestre's *Universal Palæography;* and Léon de Rosny's *Écritures figuratives*, Paris, 1870. Cf. Acosta, vi. cap. 8, and other early authorities mentioned in Prescott (Kirk's ed. i. 125); Markham's *Cieza*, 291; D. Wilson's *Prehistoric Man*, ii. ch. 18; *Fourth Rept. Bureau of Ethnology* (Washington), p. 79; Bollaert's description in *Memoirs read before the Anthropological Society of London*, i. 188, and iii. 351; A. Bastian's *Culturländer des alten America*, iii. 73; Brasseur de Bourbourg's *MS. Troano*, i. 18; Stevens's *Flint Chips*, 465; T. P. Thompson's "Knot Records of Peru" in *Westminster Review*, xi. 228; but in the separate print called *History of the Quipos, or Peruvian Knot-records, as given by the early Spanish Historians, with a Description of a supposed Specimen*, assigned to Al. Strong by Leclerc, No. 2413. The description in Frezier's *Voyage to the South Sea* (1717) is one of the earliest among Europeans. Leclerc, No. 2412, mentions a *Letter a apologetica* (Napoli, 1750), pertaining to the *quipus*, but seems uncertain as to its value. — Ed.]

fevers; and they were provided with these and other drugs by an itinerant caste, called Calahuayas or Charisanis, who went into the forests to procure them. The descendants of these itinerant doctors still wander over South America, selling drugs.[1] The discovery of a skull in a cemetery at Yucay, which exhibits clear evidence of a case of trepanning before death, proves the marvellous advances made by the Incas in surgical science.

INCA SKULL.*

The sovereign was the centre of all civilization and all knowledge. All literary culture, all the religious ceremonial which had grown up with the extension of the empire, had the Inca for their centre, as well as all the military operations and all laws connected with civil administration. Originally but the *Sinchi*, or chief of a small *ayllu*, the greatness of successive Incas grew with the extension of their power, until at last they were looked upon almost as deities by their subjects. The greatest lords entered their presence in a stooping position and with a small burden on their backs. The imperial family rapidly increased. Each Inca left behind him numerous younger sons, whose descendants formed an *ayllu*, so that the later sovereigns were surrounded by a numerous following of their own kindred, from among whom able public servants were selected. The sovereign was

[1] Blas Valera wrote upon the subject of Inca drugs, and I have given a list of those usually found in the bags of the itinerant Calahuaya doctors, in a foot-note at page 186 in vol. i. of my translation of the first part of the *Royal Commentaries* of Garcilasso de la Vega. An interesting account of the Calahuaya doctors is given by Don Modesto Basadre in his *Riquezas Peruanas*, p. 17 (Lima, 1884).

* [After the plate in the *Contrib. to N. Am. Ethnology*, vol. v. (Powell's survey, 1882), showing the trephined skull brought from Peru by Squier, in the Army Med. Museum, Washington. Squier in his *Peru*, p. 457, gives another cut, with comments of Broca and others in the appendix. Cf. in the same volume a paper on "Prehistoric Trephining and Cranial Amulets," by R. Fletcher, and a paper on "Trephining in the Neolithic Period," in the *Journal of the Anthropological Institute*, Nov., 1887. Cf. on Peruvian skulls Rudolf Virchow, in the third volume of the *Necropolis of Ancon;* T. J. Hutchinson in the *Journal of the Anthropological Institute*, iii. 311; iv. 2; Busk and Davis in *Ibid.* iii. 86, 94; Wilson's *Prehistoric Man*, ii. ch. 20; C C. Blake, in *Transactions Ethnolog. Soc.*, n. s., ii. There are two collections of Peruvian skulls in the Peabody Museum at Cambridge, Mass., — one presented by Squier, the other secured by the Haasler Expedition. (Cf. *Reports* VII. and IX. of the museum.) Wiener (*L'Empire des Incas*, p. 81) cites a long list of writers on the artificial deforming of the skull. — Ed.]

the "*Sapallan Inca*," the sole and sovereign lord, and with good reason he was called *Huaccha-cuyac*, or friend of the poor.

Enormous wealth was sent to Cuzco as tribute from all parts of the empire, for the service of the court and of the temples. The special insignia of the sovereign were the *llautu*, or crimson fringe round the forehead, the wing feathers (black and white) of the alcamari, an Andean vulture, on the head, forming together the *suntu paucar* or sacred head-dress; the *huaman champi*, or mace, and the *ccapac-yauri*, or sceptre. His dress consisted of shirts of cotton, tunics of dyed cotton in patterns, with borders of small gold and silver plates or feathers, and mantles of fine vicuña wool woven and dyed. The Incas, as represented in the pictures at Cuzco,[1] painted soon

RUINS AT CHUCUITO.*

after the conquest, wore golden breastplates suspended round their necks, with the image of the sun stamped upon them;[2] and the *Ccoya*, or queen, wore a large golden *topu*, or pin, with figures engraved on the head, which secured her *lliclla*, or mantle. All the utensils of the palace were of gold; and so exclusively was that precious metal used in the service of the court and the temple that a garden outside the Ccuri-cancha was planted with models of leaves, fruit, and stalks made of pure gold.[3]

[1] In the church of Santa Anna.

[2] [See pictures of Atahualpa in Vol. II. pp. 515, 516. For a colored plate of "Lyoux d'or péruviens," emblems of royalty, see *Archives de la Soc. Amér. de France*, n. s., i. pl. v. — Ed.]

[3] The truth of this use of gold by the Incas does not depend on the glowing descriptions of Garcilasso de la Vega. A golden breastplate and *topu*, a golden leaf with a long stalk, four specimens of golden fruit, and a girdle of gold were found near Cuzco in 1852, and sent to the late General Echenique, then President of Peru. The present writer had an opportunity of inspecting and making careful copies of them. His drawings of the breastplate and *topu* were lithographed for Bollaert's *Antiquarian Researches in Peru*, p. 146. The breastplate was 5 3-10 inches in diameter, and had four narrow slits for suspending it round the neck. The golden leaf was 12 7-10 inches long, including the stem; breadth of the base of the leaf, 3 1-10 inches. The models of fruit were 3 inches in diameter, and the girdle 18 1-4 inches long.

* [After a drawing in Squier's *Primeval Monuments of Peru*, p. 17, showing a wall of hewn stones, with an entrance. The enclosed rectangle is 65 feet on each side, — "a type of an advanced class of megalithic monuments by no means uncommon in the highlands of Peru." Cf. Squier's *Peru*, p. 354. — Ed.]

The architecture of a people is one of the most important tests of their civilization, and in this art the Incas had made astonishing progress. When their ancestor first arrived at Cuzco he had before him the cyclopean labors of a former dynasty on the heights of the Sacsahuaman. Two mountain streams flowed from either side of that hill and united in the plain, often overflowing their banks and forming swamps. The Incas drained the ground, confined the torrents between masonry walls, and erected edifices in the reclaimed space, which will remain as monuments of their skill and taste for all time. Here rose the famous city of Cuzco.

LAKE TITICACA.*

Two styles are discernible in Inca architecture. The earliest is an imitation of the cyclopean works of their ancestors on a smaller scale. The walls were built with polygonal-shaped stones with rough surfaces, but the stones were much reduced in size. Rows of doorways with slanting sides

* [After a cut in Ruge's *Gesch. des Zeital. der Entdeckungen.* Squier explored the lake with Raimond in 1864–65, and bears testimony to the general accuracy of the survey by J. B. Pentland, British consul in Bolivia (1827–28 and 1837), published by the British admiralty; but Squier points out some defects of his survey in his *Remargues sur la Géog. du Pérou*, p. 14, and in *Journal Amer. Geog. Soc.*, iii. There is another view in Wiener's *Pérou et Bolivie*, p. 441. Cf. Markham's *Cieza de Leon*, 370; Marcoy's *Voyage;* Baldwin's *Ancient America*, 228; and Philippson's *Gesch. des neu. Zeit.*, i. 240. Squier in his *Peru* (pp. 308–370) gives various views, plans of the ruins, and a map of the lake. — Ed.]

and monolithic lintels adorn the façades; while recesses for *huacas*, shaped like the doorways, occur in the interior walls. Part of the palace called the Collcampata, at the foot of the Cuzco fortress, the buildings which were added to the cyclopean work at Ollantay tampu, the older portion of the Ccuri-cancha temple at Cuzco, the palaces at Chinchero and Rimac-tampu, are in this earlier style. The later style is seen mainly at Cuzco, where the stones are laid in regular courses. No one has described this superb masonry better than Squier.[1] No cement or mortar of any kind was used, the edifices depending entirely on the accuracy of their stone-fitting for their stability. The palaces and temples were built round a court-yard, and a hall of vast dimensions, large enough for ceremonies on an extensive scale, was included in the plan of most of the edifices. These halls were 200 paces long by 50 to 60 broad. The dimensions of the Ccuri-cancha temple were 296 feet by 52, and the southwest end was apsidal. Serpents are carved in relief on some of the stones and lintels of the Cuzco palaces. Hence the palace of Huayna Ccapac is called Amaru-cancha.[2] At Hatun-colla, near Lake Titicaca, there are two sandstone pillars, probably of Inca origin, which are very richly carved. They are covered with figures of serpents, lizards, and frogs, and with elaborate geometrical patterns. The height of the walls of the Cuzco edifices was from 35 to 40 feet, and the roofs were thatched. One specimen of the admirable thatching of the Incas is still preserved at Azangaro.

LAKE TITICACA.*

There are many ruins throughout Peru both in the earlier and later styles; some of them, such as those at Vilcashuaman and Huanuco el viejo, being of great interest. The Inca palace on the island in Lake Titicaca is a rectangular two-storied edifice, with numerous rooms having ceilings formed of flat overlapping stones, laid with great regularity. With its esplanade, beautiful terraced gardens, baths, and fountains, this Titicaca palace must have been intended for the enjoyment of beautiful scenery in comparative seclusion, like the now destroyed palace at Yucay, in the valley of the Vilcamayu.

[1] "The stones are of various sizes in different structures, ranging in length from one to eight feet, and in thickness from six inches to two feet. The larger stones are generally at the bottom, each course diminishing in thickness towards the top of the wall, thus giving a very pleasing effect of graduation. The joints are of a precision unknown in our architecture, and not rivalled in the remains of ancient art in Europe. The statement of the old writers, that the accuracy with which the stones of some structures were fitted together was such that it was impossible to introduce the thinnest knife-blade or finest needle between them, may be taken as strictly true. The world has nothing to show in the way of stone cutting and fitting to surpass the skill and accuracy displayed in the Inca structures of Cuzco."

[2] Place of serpents.

* [One of the cuts which did service in the Antwerp editions of Cieza de Leon. — Ed.]

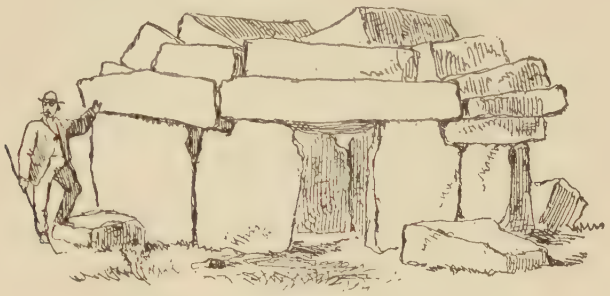
An example of the improvement of architecture after Inca subjugation is shown in the curious burial-places, or *chulpas*, of the Collao, in the basin of Lake Titicaca. The earliest, as seen at Acora near the lake, closely resemble the rude cromlechs of Brittany. Next, roughly built square towers are met with, with vaults inside. Lastly, the *chulpas* at Sillustani are well-built circular towers, about 40 feet high and 16 feet in diameter at the base,

MAP OF TITICACA, WITH WIENER'S ROUTE.

widening as they rise. A cornice runs round each tower, about three fourths of the distance from the base to the summit. The stones are admirably cut and fitted in nearly even courses, like the walls at Cuzco. The interior circular vaults, which contained the bodies, were arched with overlapping stones, and a similar dome formed the roof of the towers.

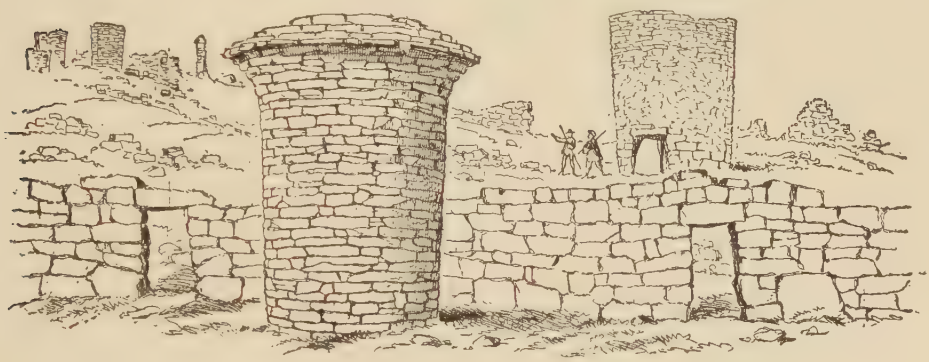
The architectural excellence reached by the Incas, their advances in the other arts and in literature, and the imperial magnificence of their court and religious worship, imply the existence of an orderly and well-regulated ad-

ministrative system. An examination of their social polity will not disappoint even high expectations. The Inca, though despotic in theory, was



PRIMEVAL TOMB, ACORA.*

bound by the complicated code of rules and customs which had gradually developed itself during the reigns of his ancestors. In his own extensive



RUINS AT QUELLENATA.†

family, composed of Auqui[1] and Atauchi,[2] Palla[3] and Ñusta,[4] to the number of many hundreds,[5] and in the Curacas[6] and Apu-curacas[7] of the conquered tribes, he had a host of able public servants to govern provinces, enter the priesthood, or command armies.

The empire was marked out into four great divisions, corresponding with the four cardinal points of a compass placed at Cuzco. To the north was

[1] An unmarried prince of the blood royal; a nobleman. Father, in the Colla dialect.

[2] A married prince of the blood royal.

[3] A married princess; a lady of noble family.

[4] An unmarried princess.

[5] At the conquest there were 594, but a great number had been killed in the previous civil war.

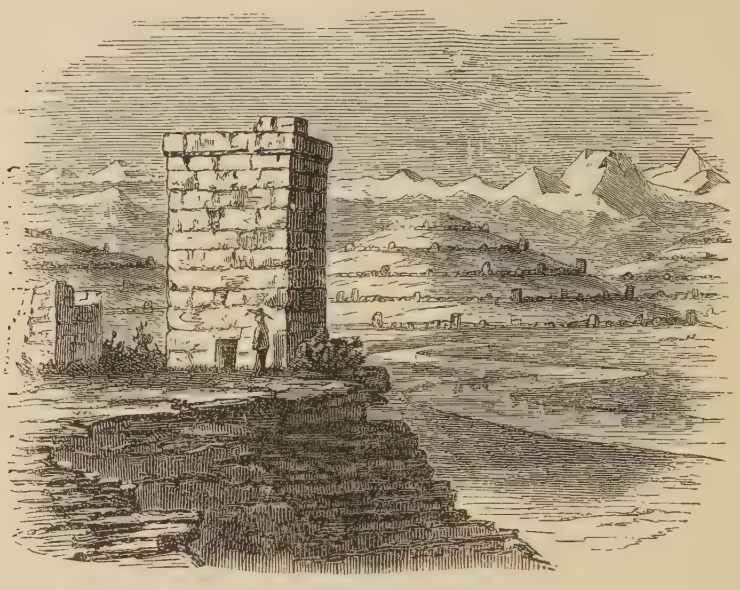
[6] Chiefs.

[7] Principal chiefs.

* [After a sketch in Squier's *Primeval Monuments of Peru*, Salem, 1870. He considers it an example of some of the oldest of human monuments, and is inclined to believe these chulpas, or burial monuments, to have been built by the ancestors of the Peruvians of the conquest in their earliest development. — Ed.]

† [Reduced from a sketch in Squier's *Primeval Monuments of Peru*, p. 7. They are situated in Bolivia, northeast of Lake Titicaca, and the cut shows a hill-fortress (pucura) and the round, flaring-top burial towers (chulpas). Cf. cut in Wiener's *Pérou et Bolivie*, p. 538. — Ed.]

Chinchay-suyu, to the east Anti-suyu, to the west Cunti-suyu, and to the



RUINS AT ESCOMA, BOLIVIA.*

south Colla-suyu. The whole empire was called Ttahuantin-suyu, or the

SILLUSTANI, PERU.†

four united provinces. Each great province was governed by an Inca viceroy, whose title was *Ccapac*, or *Tucuyricoc*.[1] The latter word means "He

[1] Balboa, Montesinos, Santillana.

* [After a cut in Squier's *Primeval Monuments of Peru*, p. 9, — a square two-storied burial tower (chulpa) with hill-fortress (pucura) in the distance, situated east of Lake Titicaca. Cf. Squier's *Peru*, p. 373. — Ed.]

† [Sun-circles (Intihuatana, where the sun is tied up), after a cut in Squier's *Primeval Monuments of Peru*, p. 15. The nearer circle is 90 feet; the farther, which has a grooved outlying platform, is 150 feet in diameter. Cf. plan and views in Squier's *Peru*, ch. 20. — Ed.]

who sees all." Garcilasso describes the office as merely that of an inspector, whose duty it was to visit the province and report. Under the viceroy were the native *Curacas*, who governed the *ayllus*, or lineages. Each *ayllu* was divided into sections of ten families, under an officer called *Chunca* (10) *camayu*. Ten of these came under a *Pachaca* (100) *camayu*. Ten *Pachacas* formed a *Huaranca* (1,000) *camayu*, and the *Hunu* (10,000) *camayu* ruled

RUINS OF AN INCARIAL VILLAGE.*

over ten *Huarancas*. The *Chunca* of ten families was the unit of government, and each *Chunca* formed a complete community.[1]

The cultivable land belonged to the people in their *ayllus*, each *Chunca* being allotted a sufficient area to support its ten *Purics* and their dependants.[2] The produce was divided between the government (*Inca*), the

[1] The male members of a *Chunca* were divided into ten classes, with reference to age and consequent ability to work: —

1. *Mosoc-aparic*, "Newly begun." A baby.
2. *Saya-huarma*, "Standing boy." A child that could stand.
3. *Macta-puric*, "Walking child." Child aged 2 to 8.
4. *Tlanta raquisic*, "Bread receiver." Boy of 8.
5. *Puclacc huarma*, "Playing boy." Boys from 8 to 16.
6. *Cuca pallac*, "Coca picker." Age from 16 to 20. Light work.
7. *Yma huayna*, "As a youth." Age 20 to 25.
8. *Puric* ——, "Able-bodied." Head of a family; paying tribute.
9. *Chaupi-ruccu*, "Elderly." Light service. Age 50 to 60.
10. *Puñuc ruccu*, "Dotage." No work. Sixty and upwards.

A *Chunca* consisted of ten *Purics*, with the other classes in proportion. The *Puric* was married to one wife, and, while assisted by the young lads and the elderly men, he supported the children and the old people who could not work. The Peruvian laborer had many superstitions, but he was not devoid of higher religious feelings. This is shown by his practice when travelling. On reaching the summit of a pass he never forgot to throw a stone, or sometimes his beloved pellet of coca, on a heap by the roadside, as a thank-offering to God, exclaiming, *Apachicta muchani!* "I worship or give thanks at this heap." Festivals lightened his days of toil by their periodical recurrence, and certain family ceremonials were also recognized as occasions for holidays. There was a gathering at the cradling of a child, called *quirau*. When the child attained the age of one year, the *rutuchicu* took place. Then he received the name he was to retain until he attained the age of puberty. The child was closely shorn, and the name was given by the eldest relation. With a girl the ceremony was called *quicuchica*, and there was a fast of two days imposed before the naming-day, when she assumed the dress called *aucalluasu*.

[2] The *tupu* was a measure of land sufficient to support one man and his wife. It was the unit of land measurement, and a *puric* received *tupus* according to the number of those depen-

* [Situated on the road from Milo to Huancayo. Reduced from an ink drawing given by Wiener in his *L'Empire des Incas*, pl. v. — Ed.]

priesthood (*Huaca*), and the cultivators or poor (*Huaccha*), but not in equal shares.[1] In some parts the three shares were kept apart in cultivation, but as a rule the produce was divided at harvest time. The flocks of llamas were divided into *Ccapac-llama*, belonging to the state, and *Huaccha-llama*, owned by the people. Thus the land belonged to the *ayllu*, or tribe, and each *puric*, or able-bodied man, had a right to his share of the crop, provided that he had been present at the sowing. All those who were absent must have been employed in the service of the Inca or Huaca, and subsisted on the government or priestly share. Shepherds and mechanics were also dependent on those shares. Officers called *Runay-pachaca* annually revised the allotments, made the census, prepared statistics for the *Quipu-camayoc*, and sent reports to the *Tucuyricoc*. The *Llacta-camayoc*, or village overseer, announced the turns for irrigation and the fields to be cultivated when the shares were grown apart. These daily notices were usually given from a tower or terrace. There were also judges or examiners, called *Taripasac*,[2] who investigated serious offences and settled disputes. Punishments for crimes were severe, and inexorably inflicted. It was also the duty of these officers, when a particular *ayllu* suffered any calamity through wars or natural causes, to allot contingents from surrounding *ayllus* to assist the neighbor in distress. There were similar arrangements when the completion or repair of any public work was urgent. The most cruel tax on the people consisted in the selection of the *Aclla-cuna*, or chosen maidens for the service of the Inca, and the church, or *Huaca*. This was done once a year by an ecclesiastical dignitary called the *Apu-Panaca*,[3] or, according to one authority, the *Hatun-uilca*,[4] who was deputy of the high-priest. Service under the Inca in all other capacities was eagerly sought for.

The industry and skill of the Peruvian husbandmen can scarcely alone account for the perfection to which they brought the science of agriculture. The administrative system of the Incas must share the credit. Not a spot of cultivable land was neglected. Towns and villages were built on rocky ground. Even their dead were buried in waste places. Dry wastes were irrigated, and terraces were constructed, sometimes a hundred deep, up the sides of the mountains. The most beautiful example of this terrace cultivation may still be seen in the "Andeneria," or hanging gardens of the valley of Vilcamayu, near Cuzco. There the terraces, commencing with broad fields at the edge of the level ground, rise to a height of 1,500 feet, narrowing as they rise, until the loftiest terraces against the perpendicular mountain side are not more than two feet wide, just room for three or four rows

dent on him. In parts of Peru, especially on the road from Tarma to Xauxa, these small square fields, or *tupus*, may still be seen in great numbers, divided by low stone walls.

[1] The shares for the *Inca* and *Huaca* varied according to the requirements of the state. If needful, the *Inca* share was increased at the expense of the *Huaca*, but never at the expense of the people's share.

[2] From *Taripani*, I examine.

[3] It should probably be *Apunaca: Apu* is a chief, and *naca* the plural suffix in the Colla dialect.

[4] *Hatun*, great, and *uilca*, sacred. This official held a position equivalent to a Christian bishop.

of maize. An irrigation canal, starting high up some narrow ravine at the snow level, is carried along the mountain side and through the terraces, flowing down from one to another.

Irrigation on a larger scale was employed not only on the desert coast, but to water the pastures and arable lands in the mountains, where there is rain for several months in the year. The channels were often of considerable size and great length. Mr. Squier says that he has followed them for days together, winding amidst the projections of hills, here sustained by high masonry walls, there cut into the living rock, and in some places conducted in tunnels through sharp spurs of an obstructing mountain. An officer knew the space of time necessary for irrigating each *tupu*, and each cultivator received a flow of water in accordance with the requirements of his land. The manuring of crops was also carefully attended to.[1]

The result of all this intelligent labor was fully commensurate with the thought and skill expended. The Incas produced the finest potato crops the world has ever seen. The white maize of Cuzco has never been approached in size or in yield. Coca, now so highly prized, is a product peculiar to Inca agriculture, and its cultivation required extreme care, especially in the picking and drying processes. Ají, or Chile pepper, furnished a new condiment to the Old World. Peruvian cotton is excelled only by Sea Island and Egyptian in length of fibre, and for strength and length of fibre combined is without an equal. Quinua, oca, aracacha, and several fruits are also peculiar to Peruvian agriculture.[2]

The vast flocks of llamas[3] and alpacas supplied meat for the people, dried *charqui* for soldiers and travellers, and wool for weaving cloth of every degree of fineness. The alpacas, whose unrivalled wool is now in such large demand, may almost be said to have been the creation of the Inca shepherds. They can only be reared by the bestowal on them of the most constant and devoted care. The wild *huanacus* and *vicuñas* were also sources of food and wool supply. No man was allowed to kill any wild animal in Peru, but there were periodical hunts, called *chacu*, in the different provinces, which were ordered by the Inca. On these occasions a wide area was surrounded by thousands of people, who gradually closed in towards the centre. They advanced, shouting and starting the game before them, and closed in, forming in several ranks until a great bag was secured. The females were released, with a few of the best and finest males. The rest were then shorn and also released, a certain proportion being killed for the sake of their flesh. The *huanacu* wool was divided among the people of the district, while the silky fleeces of the *vicuña* were reserved for the Inca. The *Quipucamayoc* kept a careful record of the number caught, shorn, and killed.

[1] [On the use of guano see Markham's *Cieza de Leon*, p. 266, note. — Ed.]

[2] [Max Steffen, in his *Die Landwirtschaft bei den Altamerikanischen Kulturvölkern* (Leipzig, 1883), gives a list of sources. — Ed.]

[3] [The llamas were used in ploughing. Cf. Humboldt's *Views of Nature*, p. 125. — Ed.]

The means of communication in so mountainous a country were an important department in the administration of the Incas. Excellent roads for foot passengers radiated from Cuzco to the remotest portions of the empire. The Inca roads were level and well paved, and continued for hundreds of leagues. Rocks were broken up and levelled when it was necessary, ravines were filled, and excavations were made in mountain sides. Velasco measured the width of the Inca roads, and found them to be from six to seven yards, sufficiently wide when only foot passengers used them. Gomara gives them a breadth of twenty-five feet, and says that they were paved with smooth stones. These measurements were confirmed by Humboldt as regards the roads in the Andes. The road along the coast was forty feet wide, according to Zarate. The Inca himself travelled in a litter, borne by mountaineers from the districts of Soras and Lucanas. *Corpa-huasi*, or rest-

FROM HELPS.*

houses, were erected at intervals, and the government messengers, or *chasquis*, ran with wonderful celerity from one of these stations to another, where he delivered his message, or *quipu*, to the next runner. Thus news was brought to the central government from all parts of the empire with extraordinary rapidity, and the Inca ate fresh fish at Cuzco which had been

* [Cf. Humboldt's account in *Views of Nature*, English transl., 393–95, 407–9, 412. Marcoy says the usual descriptions of the ancient roads are exaggerations (vol. i. 206). — Ed.]

caught in the Pacific, three hundred miles away, on the previous day. Storehouses, with arms, clothing, and provisions for the soldiers, were also built at intervals along the roads, so that an army could be concentrated at any point without previous preparation.

Closely connected with the facilities for communication, which were so admirably established by the Incas, was the system of moving colonies from one part of the empire to another. The evils of minute subdivision were thus avoided, political objects were often secured, and the comfort of the people was increased by the exchange of products. The colonists were called *mitimaes*. For example, the people of the Collao, round Lake Titicaca, lived in a region where corn would not ripen, and if confined to the products of their native land they must have subsisted solely on potatoes, quinua, and llama flesh. But the Incas established colonies from their villages in the coast valleys of Tacna and Moquegua, and in the forests to the eastward. There was constant intercourse, and while the mother country supplied *chuñus* or preserved potatoes, *charqui* or dried meat, and wool to the colonists, there came back in return, corn and fruits and cotton cloth from the coast, and the beloved coca from the forests.

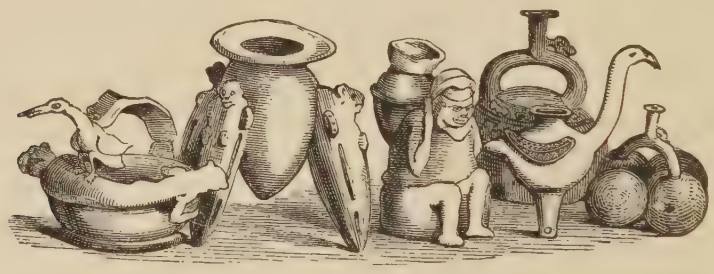
Military colonies were also established on the frontiers, and the armies of the Incas, in their marches and extensive travels, promoted the circulation of knowledge, while this service also gave employment to the surplus agricultural population. Soldiers were brought from all parts of the empire, and each tribe or *ayllu* was distinguished by its arms, but more especially by its head-dress. The Inca wore the crimson *llautu*, or fringe; the *Apu*, or general, wore a yellow *llautu*. One tribe wore a puma's head; the Cañaris were adorned with the feathers of macaws, the Huacrachucus with the horns of deer, the Pocras and Huamanchucus with a falcon's wing feathers. The arms of the Incas and Chancas consisted of a copper axe, called *champi;* a lance pointed with bronze, called *chuqui;* and a pole with a bronze or stone head in the shape of a six-pointed star, used as a club, called *macana*. The Collas and Quichuas came with slings and *bolas*, the *Antis* with bows and arrows. Defensive armor consisted of a *hualcanca* or shield, the *umachucu* or head-dress, and sometimes a breastplate. The perfect order prevailing in civil life was part of the same system which enforced strict discipline in the army; and ultimately the Inca troops were irresistible against any enemy that could bring an opposing force into the field. Only when the Incas fought against each other, as in the last civil war, could the result be long doubtful.

The artificers engaged in the numerous arts and on public works subsisted on the government share of the produce. The artists who fashioned the stones of the Sillustani towers or of the Cuzco temple with scientific accuracy before they were fixed in their places, were wholly devoted to their art. Food and clothing had to be provided for them, and for the miners, weavers, and potters. Gold was obtained by the Incas in immense quantities by washing the sands of the rivers which flowed through the forest-

covered province of Caravaya. Silver was extracted from the ore by means of blasting-furnaces called *huayra;* for, although quicksilver was known

PERUVIAN METAL WORKERS.*

and used as a coloring material, its properties for refining silver do not appear to have been discovered. Copper was abundant in the Collao and in



PERUVIAN POTTERY.†

Charcas, and tin was found in the hills on the east side of Lake Titicaca, which enabled the Peruvians to use bronze very extensively.[1] Lead was

[1] A bronze instrument found at Sorata had the following composition, according to an analysis by David Forbes: —

Copper	88.05
Tin	11.42
Iron	.36
Silver	.17
	100.00

Humboldt gave the composition of a bronze instrument found at Vilcabamba as follows: —

Copper	94
Tin	6
	100

* [Reproduction of a cut in Benzoni's *Historia del Mondo Nuovo* (1565). Cf. D. Wilson's *Prehistoric Man*, i. ch. 9, on the Peruvian metal-workers. — Ed.]

† [The tripod in this group is from Panama, the others are Peruvian. This cut follows an engraving in Wilson's *Prehistoric Man*, ii. 41. There are numerous cuts in Wiener, p. 589, etc. Cf. Stevens's *Flint Chips*, p. 271. — Ed.]

also known to them. Skilful workers in metals fashioned the vases and other utensils for the use of the Inca and of the temples, forged the arms of the soldiers and the implements of husbandry, and stamped or chased the ceremonial breastplates, *topus*, girdles, and chains. The bronze and copper warlike instruments, which were star-shaped and used as clubs, fixed at the ends of staves, were cast in moulds. One of these club-heads, now in the Cambridge collection, has six rays, broad and flat, and terminating in rounded points. Each ray represents a human head, the face on one surface and the hair and back of the head on the other. This specimen was undoubtedly cast in a mould. "It is," says Professor Putnam, "a good illustration of the knowledge which the ancient Peruvians had of the methods of working metals and of the difficult art of casting copper." [1]

Spinning, weaving, and dyeing were arts which were sources of employment to a great number of people, owing to the quantity and variety of the fabrics for which there was a demand. There were rich dresses interwoven with gold or made of gold thread; fine woollen mantles, or tunics, ornamented with borders of small square gold and silver plates; colored cotton cloths worked in complicated patterns; and fabrics of aloe fibre and sheeps' sinews for breeches. Coarser cloths of llama wool were also made in vast quantities. But the potter's art was perhaps the one which exercised the inventive faculties of the Peruvian artist to the greatest extent. The silver and gold utensils, with the exception of a very few cups and vases, have nearly all been melted down. But specimens of pottery, found buried with the dead in great profusion, are abundant. They are to be seen in every museum, and at Berlin and Madrid the collections are very large.[2] Varied as are the forms to be found in the pottery of the Incas, and elegant as are many of the designs, it must be acknowledged that they are inferior in these respects to the specimens of the plastic art of the Chimu and other people of the Peruvian coast. The Incas, however, displayed a considerable play of fancy in their

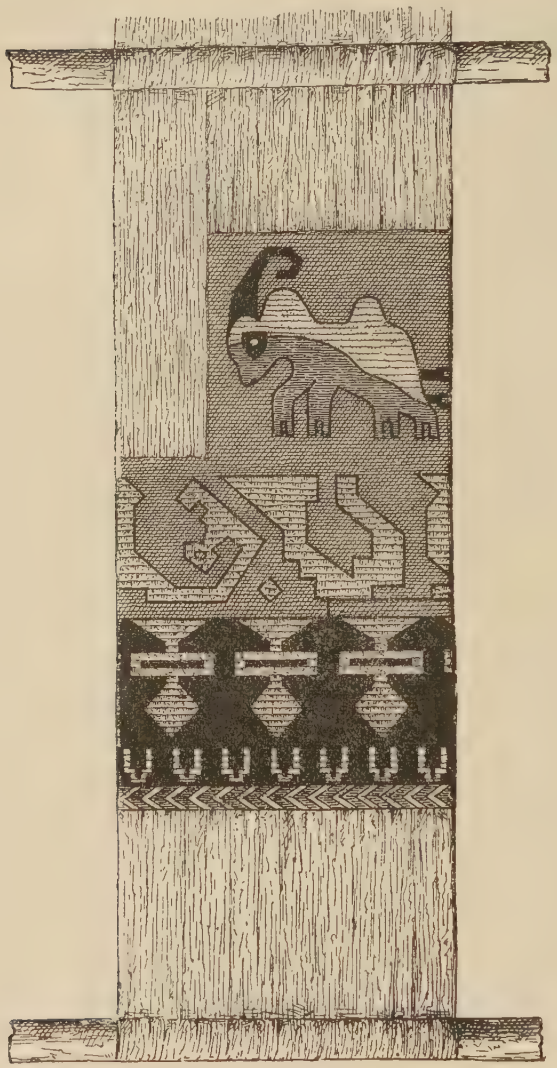
PERUVIAN DRINKING VESSEL.*

[1] *Fifteenth Report of the Trustees of the Peabody Museum of Ethnology*, vol. iii. 2, p. 140 (Cambridge, 1882).

[2] [Cf. the plates in the *Necropolis of Ancon*, and De la Rada's *Les Vases Péruviens du Musée Archéologique de Madrid*, in the *Compte Rendu* (p. 236) of the Copenhagen meeting of the Congrès des Américanistes. — ED.]

* [After a cut in Wilson's *Prehistoric Man*, ii. 45; showing a cup of the Beckford collection. "There is an individuality in the head, at once suggestive of portraiture." — ED.]

designs. Many of the vases were moulded into forms to represent animals, fruit, and corn, and were used as *conopas*, or household gods. Others took the shape of human heads or feet, or were made double or quadruple, with a single neck branching from below. Some were for interment with the *malquis*, others for household use.[1] Professor Wilson, who carefully examined several collections of ancient Peruvian pottery, formed a high opinion of their merit. "Some of the specimens," he wrote, "are purposely grotesque, and by no means devoid of true comic fancy; while, in the greater number, the endless variety of combinations of animate and inanimate forms, ingeniously rendered subservient to the requirements of utility, exhibit fertility of thought in the designer, and a lively perceptive faculty in those for whom he wrought."[2]



UNFINISHED CLOTH FOUND AT PACHACAMAC.*

There is a great deal more to learn respecting this marvellous Inca civilization. Recent publications have, within the last few years, thrown fresh and unexpected light upon it. There may be more information still undiscovered or

[1] It is believed that some of the heads on the vases were intended as likenesses. One especially, in a collection at Cuzco, is intended, according to native tradition, for a portrait of Rumi-ñaui, a character in the drama of Ollantay.

[2] *Prehistoric Man*, i. p. 110. A great number of specimens of Peruvian pottery are given in the works of Castelnau, Wiener, Squier, and in the atlas of the *Antigüedades Peruanas*. [Cf. also Marcoy's *Voyage; Mémoires de la Soc. des Antiquaires du Nord* (two plates); J. E. Price in the *Anthropological Journal*, iii. 100, and many of the books of Peruvian travel. — Ed.]

* [After a cut in Wiener, *Pérou et Bolivie*, p. 65. — Ed.]

inedited. As yet we can understand the wonderful story only imperfectly, and see it by doubtful lights. Respecting some questions, even of the first importance, we are still able only to make guesses and weigh probabilities. Yet, though there is much that is uncertain as regards historical and other points, we have before us the clear general outlines of a very extraordinary picture. In no other part of America had civilization attained to such a height among indigenous races. In no other part of the world has the administration of a purely socialistic government been attempted. The Incas not only made the attempt, but succeeded.

CRITICAL ESSAY ON THE SOURCES OF INFORMATION.

THE student of Inca civilization will first seek for information from those Spanish writers who lived during or immediately after the Spanish conquest. They were able to converse with natives who actually flourished before the disruption of the Inca empire, and who saw the working of the Inca system before the destruction and ruin had well commenced. He will next turn to those laborious inquirers and commentators who, although not living so near the time, were able to collect traditions and other information from natives who had carefully preserved all that had been handed down by their fathers.[1] These two classes include the writers of the sixteenth and seventeenth centuries. The authors who have occupied themselves with the Quichua language and the literature of the Incas have produced works a knowledge of which is essential to an adequate study of the subject.[2] Lastly, a consideration of the publications of modern travellers and scholars, who throw light on the writings of early chroniclers, or describe the present appearance of ancient remains, will show the existing position of a survey still far from complete, and the interest and charm of which invite further investigation and research.

Foremost in the first class of writers on Peru is Pedro de Cieza de Leon. A general account of his works will be found elsewhere,[3] and the present notice will therefore be confined to an estimate of the labors of this author, so far as they relate to Inca history and civilization. Cieza de Leon conceived the desire to write an account of the strange things that were to be seen in the New World, at an early period of his service as a soldier. "Neither fatigue," he tells us, "nor the ruggedness of the country, nor the mountains and rivers, nor intolerable hunger and suffering, have ever been sufficient to obstruct my two duties, namely, writing and following my flag and my captain without fault." He finished the First Part of his chronicle in September, 1550, when he was thirty-two years of age. It is mainly a geographical description of the country, containing many pieces of information, such as the account of the Inca roads and bridges, which are of great value. But it is to the Second Part that we owe much of our knowledge of Inca civilization. From incidental notices we learn how diligently young Cieza de Leon studied the history and government of the Incas, after he had written his picturesque description of the country in his First Part. He often asked the Indians what they knew of their condition before the Incas became their lords. He inquired into the traditions of the people from the chiefs of the villages. In 1550 he went to Cuzco with the express purpose of collecting information, and conferred diligently with one of the surviving descendants of the Inca Huayna Ccapac. Cieza de Leon's plan, for the second part of his work, was first to review the system of government of the Incas, and then to narrate the events of the reign of each sovereign. He spared no pains to obtain the best and most authentic information, and his sympathy with the conquered people, and generous appreciation of their many good and noble qualities, give a special charm to his narrative. He bears striking evidence to the historical faculty possessed by the learned men at the court of the Incas. After saying that on the death of a sovereign the chroniclers related the events of his reign to his successor, he adds: "They could well do this, for there were among

[1] [The narratives of the Spanish conquest necessarily throw much light, sometimes more than incidentally, upon the earlier history of the region. These sources are characterized in the critical essay appended to chapter viii. of Vol. II., and embrace bibliographical accounts of Herrera, Gomara, Oviedo, Andagoya, Xeres, Fernandez, Oliva, not to name others of less moment. — ED.]

[2] See Note II. following this essay.

[3] Vol. II. p. 573.

them some men with good memories, sound judgments, and subtle genius, and full of reasoning power, as we can bear witness who have heard them even in these our days." Cieza de Leon is certainly one of the most important authorities on Inca history and civilization, whether we consider his peculiar advantages, his diligence and ability, or his character as a conscientious historian.

Juan José de Betanzos, like Cieza de Leon, was one of the soldiers of the conquest. He married a daughter of Atahualpa, and became a citizen at Cuzco, where he devoted his time to the study of Quichua. He was appointed official interpreter to the Audience and to successive viceroys, and he wrote a *Doctrina* and two vocabularies which are now lost. In 1558 he was appointed by the viceroy Marquis of Cañete, to treat with the Inca Sayri Tupac,[1] who had taken refuge in the fastness of Vilcabamba; and by the Governor Lope Garcia de Castro, to conduct a similar negotiation with Titu Cusi Yupanqui, the brother of Sayri Tupac. He was successful in both missions. He wrote his most valuable work, the *Suma y Narracion de los Incas*, which was finished in the year 1551, by order of the Viceroy Don Antonio de Mendoza, but its publication was prevented by the death of the viceroy. It remained in manuscript, and its existence was first made known by the Dominican monk Gregorio Garcia in 1607, whose own work will be referred to presently. Garcia said that the history of Betanzos relating to the origin, descent, succession, and wars of the Incas was in his possession, and had been of great use to him. Leon Pinelo and Antonio also gave brief notices of the manuscript, but it is only twice cited by Prescott. The great historian probably obtained a copy of a manuscript in the Escurial, through Obadiah Rich. This manuscript is bound up with the second part of Cieza de Leon. It is not, however, the whole work which Garcia appears to have possessed, but only the first eighteen chapters, and the last incomplete. Such as it is, it was edited and printed for the *Biblioteca Hispano-Ultramarina*, by Don Márcos Jiménez de la Espada, in 1880.[2]

The work of Betanzos differs from that of Cieza de Leon, because while the latter displays a diligence and discretion in collecting information which give it great weight as an authority, the former is imbued with the very spirit of the natives. The narrative of the preparation of young Yupanqui for the death-struggle with the Chancas is life-like in its picturesque vigor. Betanzos has portrayed native feeling and character as no other Spaniard has, or probably could have done. Married to an Inca princess, and intimately conversant with the language, this most scholarly of the conquerors is only second to Cieza de Leon as an authority. The date of his death is unknown.

Betanzos and Cieza de Leon, with Pedro Pizarro, are the writers among the conquerors whose works have been preserved. But these three martial scholars by no means stand alone among their comrades as authors. Several other companions of Pizarro wrote narratives, which unfortunately have been lost.[3] It is indeed surprising that the desire to record some account of the native civilization they had discovered should have been so prevalent among the conquerors. The fact scarcely justifies the term "rude soldiery," which is so often applied to the discoverers of Peru.

The works of the soldier conquerors are certainly not less valuable than those of the lawyers and priests who followed on their heels. Yet these latter treat the subject from somewhat different points of view, and thus furnish supplemental information. The works of four lawyers of the era of the conquest have been preserved, and those of another are lost. Of these, the writings of the Licentiate Polo de Ondegardo are undoubtedly the most important. This learned jurist accompanied the president, La Gasca, in his campaign against Gonzalo Pizarro, having arrived in Peru a few years previously, and he subsequently occupied the post of corregidor at Cuzco. Serving under the Viceroy Don Fran-

[1] Cf. Vol. II. p. 546.

[2] *Suma y narracion de los Incas, que los Indios llamaron Capaccuna que fueron señores de la ciudad del Cuzco y de todo lo á ella subjeto. Publícala M. Jiménez de la Espada* (Madrid, 1880).

[3] We learn from Leon Pinelo that one of the famous band of adventurers who crossed the line drawn by Pizarro on the sands of Gallo was an author (Antonio, ii. 645). But the *Relacion de la tierra que descubrió Don Francisco Pizarro*, by Diego de Truxillo, remained in manuscript and is lost to us. Francisco de Chaves, one of the most respected of the companions of Pizarro, who strove to save the life of Atahualpa, and was an intimate friend of the Inca's brother, was also an author. Chaves is honorably distinguished for his moderation and humanity. He lost his own life in defending the staircase against the assassins of Pizarro. He left behind a copious narrative, and his intimate relations with the Indians make it likely that it contained much valuable information respecting Inca civilization. It was inherited by the author's friend and relation, Luis Valera, but it was never printed, and the manuscript is now lost. The works of Palomino, a companion of Belalcazar, who wrote on the kingdom of Quito, are also lost, with the exception of a fragment preserved in the *Breve Informe* of Las Casas. Other soldiers of the conquest, Tomas Vasquez, Francisco de Villacastin, Garcia de Melo, and Alonso de Mesa, are mentioned as men who had studied and were learned in all matters relating to Inca antiquities; but none of their writings have been preserved.

cisco de Toledo, he was constantly consulted by that acute but narrow-minded statesman. His duties thus led Polo de Ondegardo to make diligent researches into the laws and administration of the Incas, with a view to the adoption of all that was applicable to the new régime. But his knowledge of the language was limited, and it is necessary to receive many of his statements with caution. His two *Relaciones*, the first dedicated to the Viceroy Marques de Cañete (1561), and the second finished in 1570,[1] are in the form of answers to questions on financial revenue and other administrative points. They include information respecting the social customs, religious rites, and laws of the Incas. These *Relaciones* are still in manuscript. Another report by Polo de Ondegardo exists in the National Library at Madrid,[2] and has been translated into English for the Hakluyt Society.[3] In this treatise the learned corregidor describes the principles on which the Inca conquests were made, the division and tenures of land, the system of tribute, the regulations for preserving game and for forest conservancy, and the administrative details. Here and there he points out a way in which the legislation of the Incas might be imitated and utilized by their conquerors.[4]

Agustin de Zarate, though a lawyer by profession, had been employed for some years in the financial department of the Spanish government before he went out to Peru with the Viceroy Blasco Nuñez to examine into the accounts of the colony. On his return to Spain he was entrusted with a similar mission in Flanders. His *Provincia del Peru* was first published at Antwerp in 1555.[5] Unacquainted with the native languages, and ignorant of the true significance of much that he was told, Zarate was yet a shrewd observer, and his evidence is valuable as regards what came under his own immediate observation. He gives one of the best descriptions of the Inca roads.

The *Relacion* of Fernando de Santillan is a work which may be classed with the reports of Polo de Ondegardo, and its author had equal advantages in collecting information. Going out to Peru as one of the judges of the Audiencia in 1550,[6] Santillan was for a short time at the head of the government, after the death of the Viceroy Mendoza, and he took the field to suppress the rebellion of Giron. He afterwards served in Chile and at Quito, where he was commissioned to establish the court of justice. Returning to Spain, he took orders, and was appointed Bishop of the La Plata, but died at Lima, on his way to his distant see, in 1576. The *Relacion* of Santillan remained in manuscript, in the library of the Escurial, until it was edited by Don Márcos Jiménez de la Espada in 1879. This report appears to have been prepared in obedience to a decree desiring the judges of Lima to examine aged and learned Indians regarding the administrative system of the Incas. The report of Santillan is mainly devoted to a discussion of the laws and customs relating to the collection of tribute. He bears testimony to the excellence of the Inca government, and to the wretched condition to which the country had since been reduced by Spanish misrule.

The work of the Licentiate Juan de Matienzo, a contemporary of Ondegardo, entitled *Gobierno de el Peru*, is still in manuscript. Like Santillan and Ondegardo, Matienzo discusses the ancient institutions with a view to the organization of the best possible system under Spanish rule.[7]

Melchor Bravo de Saravia, another judge of the Royal Audience at Lima, and a contemporary of Santillan, is said to have written a work on the antiquities of Peru; but it is either lost or has not yet been placed within reach of the student. It is referred to by Velasco. Cieza de Leon mentions, at the end of his Second Part, that his own work had been perused by the learned judges Hernando de Santillan and Bravo de Saravia.

While the lawyers turned their attention chiefly to the civil administration of the conquered people, the priests naturally studied the religious beliefs and languages of the various tribes, and collected their historical traditions. The best and most accomplished of these sacerdotal authors appears to have been Blas Valera, judging from the fragments of his writings which have escaped destruction. He was a native of Peru, born at Chachapoyas in 1551, where his father, Luis Valera,[8] one of the early conquerors, had settled. Young Blas was received into the Company of Jesus at Lima when only seventeen years of age, and, as he was of Inca race on the mother's side, he soon became useful at the College in Cuzco from his proficiency in the native languages. He did missionary work in the surrounding villages, and acquired a profound knowledge of the history and institutions of the Incas. Eventually he completed a work on the subject in Latin, and was sent to Spain by his

1 But not dedicated to the Conde de Nieva, as Prescott states, for that viceroy died in 1564.

2 B, 135.

3 Report by Polo de Ondegardo, translated by Clements R. Markham (Hakluyt Society, 1873).

4 [See Vol. II. p. 571. — Ed.]

5 [See Vol. II. p. 567–8, for bibliography. — Ed.]

6 [See Vol. II. p. 542. — Ed.]

7 Additional MSS. 5469, British Museum, folio, p. 274. See Vol. II. p. 571.

8 See *ante*, p. 6.

Jesuit superiors with a view to its publication. Unfortunately the greater part of his manuscript was burnt at the sack of Cadiz by the Earl of Essex in 1596, and Blas Valera himself died shortly afterwards. The fragments that were rescued fell into the hands of Garcilasso de la Vega, who translated them into Spanish, and printed them in his *Commentaries*. It is to Blas Valera that we owe the preservation of two specimens of Inca poetry and an estimate of Inca chronology. He has also recorded the traditional sayings of several Inca sovereigns, and among his fragments there are very interesting chapters on the religion, the laws and ordinances, and the language of the Incas, and on the vegetable products and medicinal drugs of Peru. These fragments are evidence that Blas Valera was an elegant scholar, a keen observer, and thoroughly master of his subject. They enhance the feeling of regret at the irreparable loss that we have sustained by the destruction of the rest of his work.

Next to Blas Valera, the most important authority on Inca civilization, among the Spanish priests who were in Peru during the sixteenth century, is undoubtedly Christoval de Molina. He was chaplain to the hospital for natives at Cuzco, and his work was written between 1570 and 1584, the period embraced by the episcopate of Dr. Sebastian de Artaun, to whom it is dedicated. Molina gives minute and detailed accounts of the ceremonies performed at all the religious festivals throughout the year, with the prayers used by the priests on each occasion. Out of the fourteen prayers preserved by Molina, four are addressed to the Supreme Being, two to the sun, the rest to these and other deities combined. His mastery of the Quichua language, his intimacy with the native chiefs and learned men, and his long residence at Cuzco give Molina a very high place as an authority on Inca civilization. His work has remained in manuscript,[1] but it has been translated into English and printed for the Hakluyt Society.[2]

Molina, in his dedicatory address to Bishop Artaun, mentions a previous narrative which he had submitted, on the origin, history, and government of the Incas. Fortunately this account was preserved by Miguel Cavello Balboa, an author who wrote at Quito between 1576 and 1586. Balboa, a soldier who had taken orders late in life, went out to America in 1566, and settled at Quito, where he devoted himself to the preparation and writing of a work which he entitled *Miscellanea Austral*. It is in three parts; but only the third, comprising about half the work, relates to Peru. Balboa tells us that his authority for the early Inca traditions and history was the learned Christoval de Molina, and this gives special value to Balboa's work. Moreover, Balboa is the only authority who gives any account of the origin of the coast people, and he also supplies a detailed narrative of the war between Huascar and Atahualpa. The portion relating to Peru was translated into French and published by Ternaux Compans in 1840.[3]

The Jesuits who arrived in Peru during the latter part of the sixteenth century were devoted to missionary labors, and gave an impetus to the study of the native languages and history. Among the most learned was José de Acosta, who sailed for Peru in 1570. At the early age of thirty-five, Acosta was chosen to be Provincial of the Jesuits in Peru, and his duties required him to travel over every part of the country. His great learning, which is displayed in his various theological works, qualified him for the task of writing his *Natural and Moral History of the Indies*, the value of which is increased by the author's personal acquaintance with the countries and their inhabitants. Acosta went home in the Spanish fleet of 1587, and his first care, on his return to Spain, was to make arrangements for the publication of his manuscripts. The results of his South American researches first saw the light at Salamanca, in Latin, in 1588 and 1589. The complete work in Spanish, *Historia Natural y Moral de las Indias*, was published at Seville in 1590. Its success was never doubtful.[4] In his latter years Acosta presided over the Jesuits' College at Salamanca, where he died in his sixtieth year, on February 15, 1600.[5] In spite of the learning and diligence of Acosta and of the great popularity of his work, it cannot be considered one of the most valuable contributions towards a knowledge of Inca civilization. The information it contains is often inaccurate, the details are less complete than in most of the other works written soon after the conquest,[6] and a want of knowledge of the lan-

[1] National Library at Madrid, B, 135.

[2] *The fables and rites of the Incas, by Christoval de Molina*, translated and edited by Clements R. Markham (Hakluyt Society, 1873).

[3] [See Vol. II. p. 576. — Ed.]

[4] For the bibliography of Acosta, see Vol. II. p. 420, 421.

[5] Notices of the life and works of Acosta have been given in biographical dictionaries, and in histories of the Jesuits. An excellent biography will be found in a work entitled *Los Antiquos Jesuitas del Peru*, by Don Enrique Torres Saldamando, which was published at Lima in 1885. See also an introductory notice in Markham's edition (1880).

[6] Thus his lists of the Incas, of the names of months and of festivals, are very defective; and his list of names of stars, though copied from Balboa without acknowledgment, is incomplete.

guage is frequently made apparent. The best chapters are those devoted to the animal and vegetable products of Peru; and Feyjoo calls Acosta the Pliny of the New World.[1]

The Licentiate Fernando Montesinos, a native of Osuna, was one of the most diligent of all those who in early times made researches into the history and traditions of the Incas. Montesinos went out in the fleet which took the Viceroy Count of Chinchon to Peru, arriving early in the year 1629. Having landed at Payta, Montesinos travelled southwards towards the capital until he reached the city of Truxillo. At that time Dr. Carlos Marcelino Corni was Bishop of Truxillo.[2] Hearing of the virtue and learning of Montesinos, Dr. Corni begged that he might be allowed to stop at Truxillo, and take charge of the Jesuits' College which the good bishop had established there. Montesinos remained at Truxillo until the death of Bishop Corni, in October, 1629,[3] and then proceeded to Potosi, where he gave his attention to improvements in the methods of extracting silver. He wrote a book on the subject, which was printed at Lima, and also compiled a code of ordinances for mines with a view to lessening disputes, which was officially approved. Returning to the capital, he lived for several years at Lima as chaplain of one of the smaller churches, and devoted all his energies to the preparation of a history of Peru. Making Lima his headquarters, the indefatigable student undertook excursions into all parts of the country, wherever he heard of learned natives to be consulted, of historical documents to be copied, or of information to be found. He travelled over 1,500 leagues, from Quito to Potosi. In 1639 he was employed to write an account of the famous Auto de Fé which was celebrated at Lima in that year. His two great historical works are entitled *Memorias Antiguas Historiales del Peru*, and *Anales ó Memorias Nuevas del Peru*.[4] From Lima Montesinos proceeded to Quito as "Visitador General," with very full powers conferred by the bishop.

The work of Montesinos remained in manuscript until it was translated into French by M. Ternaux Compans in 1840, with the title *Mémoires Historiques sur l'ancien Pérou*. In 1882 the Spanish text was very ably edited by Don Márcos Jiménez de la Espada.[5] Montesinos gives the history of several dynasties which preceded the rise of the Incas, enumerating upwards of a hundred sovereigns. He professes to have acquired a knowledge of the ancient records through the interpretations of the *quipus*, communicated to him by learned natives. It was long supposed that the accounts of these earlier sovereigns received no corroboration from any other authority. This furnished legitimate grounds for discrediting Montesinos. But a narrative, as old or older than that of the licentiate, has recently been brought to light, in which at least two of the ancient sovereigns in the lists of Montesinos are incidentally referred to. This circumstance alters the aspect of the question, and places the *Memorias Antiquas del Peru* in a higher position as an authority; for it proves that the very ancient traditions which Montesinos professed to have received from the natives had previously been communicated to one other independent inquirer at least.

This independent inquirer is an author whose valuable work has recently been edited by Don Márcos Jiménez de la Espada.[6] His narrative is anonymous, but internal evidence establishes the fact that he was a Jesuit, and probably one of the first who arrived in Peru in 1568, although he appears to have written his work many years

1 Acosta was the chief source whence the civilized world of the seventeenth and eighteenth centuries, beyond the limits of Spain, derived a knowledge of Peruvian civilization. Purchas, in his *Pilgrimage* (ed. of 1623, lib. v. p. 869; vi. p. 931), quotes largely from the learned Jesuit, and an abstract of his work is given in Harris's *Voyages* (lib. i. cap. xiii. pp. 751–799). He is much relied upon as an authority by Robertson, and is quoted 19 times in Prescott's *Conquest of Peru*, thus taking the fourth place as an authority with regard to that work, since Garcilasso is quoted 89 times, Cieza de Leon 45, Ondegardo 41, Acosta 19.

2 Of whose parentage a pleasing story is told. He was a native of Truxillo, of French parents, his father being a metal-founder. When he was a small boy his father said to him, "Study, little Charles, study! and this bell that I am founding shall be rung for you when you are the bishop." ("Estudiar, Carlete, estudiar! que con esta campana te han de repicar cuando seas obispo.") Dr. Corni rose to be a prelate of great virtue and erudition, and an eloquent preacher. At last he became Bishop of Truxillo in 1620, and when he heard the chimes which were rung on his approach to the city, he said, "That bell which excels all the others was founded by my father." ("Aquella campana que sobresale entre las demas le fundio mi padre.")

3 *Papeles Varios de Indias.* MS. Brit. Mus.

4 This last work is devoted to the Spanish conquest.

5 In the series entitled *Coleccion de libros Españoles raros ó curiosos*, tom xvi. (Madrid, 1882.) [The original manuscript is in the library of the Real Academia de Historia at Madrid. Brasseur de Bourbourg had a copy (*Pinart Catalogue*, No. 638; *Bibl. Mex. Guat.*, p. 103), which appeared also in the Del Monte sale (N. Y., June, 1888, — *Catalogue*, iii. no. 554). Cf. the present *History*, II. pp. 570, 577. — Ed.]

6 *Relacion de las costumbres antiquas de los naturales del Peru. Anónima.* The original is among the manuscript in the National Library at Madrid. It was published as part of a volume entitled *Tres Relaciones de Antigüedades Peruanas. Publicalas el Ministerio de Fomento* (Madrid, 1879).

afterwards. The anonymous Jesuit supplies information respecting works on Peruvian civilization which are lost to us. He describes the temples, the orders of the priesthood, the sacrifices and religious ceremonies, explaining the origin of the erroneous statement that human sacrifices were offered up. He also gives the code of criminal law and the customs which prevailed in civil life, and concludes his work with a short treatise on the conversion of the Indians.

The efforts of the viceroys and archbishops of Lima during the early part of the seventeenth century to extirpate idolatry, particularly in the province of Lima, led to the preparation of reports by the priests who were entrusted with the duty of extirpation, which contain much curious information. These were the Fathers Hernando de Avendaño, Francisco de Avila, Luis de Teruel, and Pablo José de Arriaga. Avendaño, in addition to his sermons in Quichua, wrote an account of the idolatries of the Indians, — *Relacion de las Idolatrias de los Indios*, — which is still in manuscript. Avila was employed in the province of Huarochiri, and in 1608 he wrote a report on the idols and superstitions of the people, including some exceedingly curious religious legends. He appears to have written down the original evidence from the mouths of the Indians in Quichua, intending to translate it into Spanish. But he seems to have completed only six chapters in Spanish; or perhaps the translation is by another hand. There are still thirty-one chapters in Quichua awaiting the labors of some learned Peruvian scholar. Rising Quichua students, of whom there are not a few in Peru, could undertake no more useful work. This important report of Avila is comprised in a manuscript volume in the National Library at Madrid, and the six Spanish chapters have been translated and printed for the Hakluyt Society.[1] Teruel was the friend and companion of Avila. He also wrote a treatise on native idolatries,[2] and another against idolatry,[3] in which he discusses the origin of the coast people. Arriaga wrote a still more valuable work on the extirpation of idolatry, which was printed at Lima in 1621, and which relates the religious beliefs and practices of the people in minute detail.[4]

Antiquarian treasures of great value are buried in the works of ecclesiastics, the principal objects of which are the record of the deeds of one or other of the religious fraternities. The most important of these is the *Coronica Moralizada del orden de San Augustin en el Peru; del Padre Antonio de la Calancha* (1638–1653),[5] which is a precious storehouse of details respecting the manners and customs of the Indians and the topography of the country. Calancha also gives the most accurate Inca calendar. Of less value is the chronicle of the Franciscans, by Diego de Cordova y Salinas, published at Madrid in 1643.

A work, the title of which gives even less promise of containing profitable information, is the history of the miraculous image of a virgin at Copacabana, by Fray Alonso Ramos Gavilan. Yet it throws unexpected light on the movements of the *mitimaes*, or Inca colonists; it gives fresh details respecting the consecrated virgins, the sacrifices, and the deities worshipped in the Collao, and supplies another version of the Inca calendar.[6]

The work on the origin of the Indians of the New World, by Fray Gregorio Garcia,[7] who travelled extensively in the Spanish colonies, is valuable, and to Garcia we owe the first notice of the priceless narrative of Betanzos. His separate work on the Incas is lost to us.[8] Friar Martin de Múrua, a native of Guernica, in Biscay, was an ecclesiastic of some eminence in Peru. He wrote a general history of the Incas, which was copied by Dr. Muñoz for his collection, and Leon Pinelo says that the manuscript was illustrated with colored drawings of insignia and dresses, and portraits of the Incas.[9]

The principal writers on Inca civilization in

[1] *Narrative of the errors, false gods, and other superstitions and diabolical rites in which the Indians of the province of Huarochiri lived in ancient times, collected by Dr. Francisco de Avila, 1608: translated and edited by Clements R. Markham* (Hakluyt Society, 1872). [There was a copy of the Spanish MS. in the E. G. Squier sale, 1876, no. 726. — Ed.]

[2] *Tratado de las idolatrias de los Indios del Peru.* This work is mentioned by Leon Pinelo as "una obra grande y de mucha erudicion," but it was never printed.

[3] *Contra idolatriam*, MS.

[4] *Extirpacion de la idolatria del Peru, por el Padre Pablo Joseph de Arriaga* (Lima, 1621, pp. 137).

[5] [See Vol. II. p. 570. The *Historiæ Pervanæ ordinis Eremitarum S. P. Augustini libri octodecim* (*1651–52*) is mainly a translation of Calancha. Cf. Sabin, nos. 8760, 9870. — Ed.]

[6] *Historia de Copacabana y de su milagrosa imagen, escrita por el R. P. Fray Alonso Ramos Gavilan* (1620). The work of Ramos was reprinted from an incomplete copy at La Paz in 1860, and edited by Fr. Rafael Sans.

[7] *Origen de los Indios del Nuevo Mundo* (1607), and in Barcia (1729).

[8] *Monarquia de los Incas del Peru.* Antonio says of this work, "Tertium quod promiserat adhuc latet nempe."

[9] *Historia general del Peru, origen y descendencia de los Incas, pueblos y ciudades, por P. Fr. Martin de Múrua* (1618). [Cf. Markham's *Cieza's Travels*, Second Part, p. 12. — Ed.]

the century immediately succeeding the conquest, of the three different professions, — soldiers, lawyers, and priests, — have now been passed in review. Attention must next be given to the native writers who followed in the wake of Blas Valera. First among these is the Inca Garcilasso de la Vega, an author whose name is probably better known to the general reader than that of any other who has written on the same subject. Among the Spanish conquerors who arrived in Peru in 1534 was Garcilasso de la Vega, a cavalier of very noble lineage,[1] who settled at Cuzco, and was married to an Inca princess named Chimpa Ocllo, niece of the Inca Huayna Ccapac. Their son, the future historian, was born at Cuzco in 1539, and his earliest recollections were connected with the stirring events of the civil war between Gonzalo Pizarro and the president La Gasca, in 1548. His mother died soon afterwards, probably in 1550, and his father married again. The boy was much in the society of his mother's kindred, and he often heard them talk over the times of the Incas, and repeat their historical traditions. Nor was his education neglected; for the good Canon Juan de Cuellar read Latin with the half-caste sons of the citizens of Cuzco for nearly two years, amidst all the turmoil of the civil wars. As he grew up, he was employed by his father to visit his estates, and he travelled over most parts of Peru. The elder Garcilasso de la Vega died in 1560, and the young orphan resolved to seek his fortune in the land of his fathers. On his arrival in Spain he received patronage and kindness from his paternal relatives, became a captain in the army of Philip II, and when he retired, late in life, he took up his abode in lodgings at Cordova, and devoted himself to literary pursuits. His first production was a translation from the Italian of "The Dialogues of Love," and in 1591 he completed his narrative of the expedition of Hernando de Soto to Florida.[2]

As years rolled on, the Inca began to think more and more of the land of his birth. The memory of his boyish days, of the long evening chats with his Inca relations, came back to him in his old age. He was as proud of his maternal descent from the mighty potentates of Peru as of the old Castilian connection on his father's side. It would seem that the appearance of several books on the subject of his native land finally induced him to undertake a work in which, while recording its own reminiscences and the information he might collect, he could also com-

HOUSE IN CUZCO IN WHICH GARCILASSO WAS BORN.*

ment on the statements of other authors. Hence the title of *Commentaries* which he gave to his work. Besides the fragments of the writings of Blas Valera, which enrich the pages of Garcilasso, the Inca quotes from Acosta, from Gomara, from Zarate, and from the First Part of Cieza de Leon.[3] He was fortunate in getting possession of the chapters of Blas Valera rescued from the sack of Cadiz. He also wrote to all his surviving schoolfellows for assistance, and received many traditions and detailed replies on other subjects from them. Thus Alcobasa forwarded an account of the ruins at Tiahuanacu, and another friend sent him the measurements of the great fortress at Cuzco.

The Inca Garcilasso de la Vega is, without doubt, the first authority on the civilization of his ancestors; but it is necessary to consider his qualifications and the exact value of his evidence. He had lived in Peru until his twentieth year; Quichua was his native language, and he had

1 He was a cousin of the poet of the same name, and of the dukes of Feria.

2 See Vol. II. pp. 290, 575.

3 The *Commentarios Reales* (Part I.) of Garcilassos de la Vega contain 21 quotations from Blas Valera, 30 from Cieza de Leon (first part), 27 from Acosta, 11 from Gomara, 9 from Zarate, 3 from the *Republica de las Indias Occidentales* of Fray Geronimo Roman, 2 from Fernandez, 4 from the Inca's schoolfellow Alcobasa, and 1 from Juan Botero Benes.

* [After a cut in Marcoy, i. 219. Cf. Squier's *Peru*, p. 449. — Ed.]

constantly heard the traditions of the Incas related and discussed by his mother's relations. But when he began to write he had been separated from these associations for upwards of thirty years. He received materials from Peru, enabling him to compose a connected historical narrative, which is not, however, very reliable. The true value of his work is derived from his own reminiscences, aroused by reading the books which are the subjects of his Commentary, and from his correspondence with friends in Peru. His memory was excellent, as is often proved when he corrects the mistakes of Acosta and others with diffidence, and is invariably right. He was not credulous, having regard to the age in which he lived; nor was he inclined to give the rein to his imagination. More than once we find him rejecting the fanciful etymologies of the authors whose works he criticises. His narratives of the battles and conquests of the early Incas often become tedious, and of this he is himself aware. He therefore intersperses them with more interesting chapters on the religious ceremonies, the domestic habits and customs, of the people, and on their advances in poetry, astronomy, music, medicine, and the arts. He often inserts an anecdote from the storehouse of his memory, or some personal reminiscence called forth by the subject on which he happens to be writing. His statements frequently receive undesigned corroboration from authors whose works he never saw. Thus his curious account of the water sacrifices, not mentioned by any other published authority, is verified by the full description of the same rite in the manuscript of Molina. On the other hand, the long absence of the Inca from his native country entailed upon him grave disadvantages. His boyish recollections, though deeply interesting, could not, from the nature of the case, provide him with critical knowledge. Hence the mistakes in his work are serious and of frequent occurrence. Dr. Villar has pointed out his total misconception of the Supreme Being of the Peruvians, and of the significance of the word "Uiracocha."[1] But, with all its shortcomings,[2] the work of the Inca Garcilasso de la Vega must ever be the main source of our knowledge, and without his pious labors the story of the Incas would lose more than half its interest.

The first part of his *Commentarios Reales*, which alone concerns the present subject, was published at Lisbon in 1607.[3] The author died at Cordova at the age of seventy-six, and was buried in the cathedral in 1616. He lived just long enough to accomplish his most cherished wish, and to complete the work at which he had steadily and lovingly labored for so many years.

Another Indian author wrote an account of the antiquities of Peru, at a time when the grandchildren of those who witnessed the conquest by the Spaniards were living. Unlike Garcilasso, this author never left the land of his birth, but he was not of Inca lineage. Don Juan de Santacruz Pachacuti Yamqui Salcamayhua was a native of the Collao, and descended from a family of local chiefs. His work is entitled *Relacion de Antigüedades deste Reyno del Peru*. It long remained in manuscript in the National Library at Madrid, until it was edited by Don Márcos Jiménez de la Espada in 1879. It had previously been translated into English and edited for the Hakluyt Society.[4] Salcamayhua gives the traditions of Inca history as they were handed down to the third generation after the conquest. Intimately acquainted with the language, and in a position to converse with the oldest recipients of native lore, he is able to record much that is untold elsewhere, and to confirm a great deal that is related by former authors. He has also preserved two prayers in Quichua, attributed to Manco Ccapac, the first Inca, and some others, which add to the number given by Molina. He also corroborates the important statement of Molina, that the great gold plate in the temple at Cuzco was intended to represent the Supreme Being, and not the sun. Salcamayhua is certainly a valuable addition to the authorities on Peruvian history.

While so many soldiers and priests and lawyers did their best to preserve a knowledge of Inca civilization, the Spanish government itself was not idle. The kings of Spain and their official advisers showed an anxiety to prevent the destruction of monuments and to collect historical and topographical information which is worthy of all praise. In 1585, orders were given to all the local authorities in Spanish America to transmit such information, and a circular, containing a series of interrogatories, was issued for their guidance. The result of this measure was, that a great number of *Relaciones descriptivas* were received in Spain, and stored up in the archives of the Indies. Herrera had these reports before him when he was writing his history, but it is certain that he did not make use of half the

[1] In a learned pamphlet on the word *Uirakocha*, — "*Lexicologia Keshua por Leonardo Villar*" (pp. 16, double columns. Lima, 1887).

[2] [The common expression of distrust is such as is shown by Hutchinson in his *Two Years in Peru*, who finds little to commend amid a constant glorification of the Incas to the prejudice of the older peoples; and by Marcoy in his *Travels in South America*, who speaks of his "simple and audacious gasconades" (Eng. trans. i. p. 186). — Ed.]

[3] [Cf. the bibliography of the book in Vol. II. pp. 569, 570, 575. — Ed.]

[4] By Clements R. Markham, in 1872.

HISTORIA GENERAL
DE LOS HECHOS DE LOS
CASTELLANOS EN LAS ISLAS
Y TIERRA FIRME DEL MAR OCEANO
ESCRITA POR ANTONIO D HERRERA
CORONISTA DE CASTILLA Y
MAYOR DE LAS INDIAS
De cada quinta
Al Rey Nuestro Señor.
en Madrid por Iu. de la Cuesta
Año. 1615.

[NOTE. — The title-page of the fifth decade of Herrera, showing the Inca portraits, is given above. Cf. the plate in Stevens's English translation of Herrera, vol. iv., London, 1740, 2d edition. — ED.]

material they contain.[1] Another very curious and valuable source of information consists of the reports on the origin of Inca sovereignty, which were prepared by order of the Viceroy Don Francisco de Toledo, and forwarded to the council of the Indies. They consist of twenty documents, forming a large volume, and preceded by an introductory letter. The viceroy's object was to establish the fact that the Incas had originally been usurpers, in forcibly acquiring authority over the different provinces of the empire, and dispossessing the native chiefs. His inference was, that, as usurpers, they were rightfully dethroned by the Spaniards. He failed to see that such an argument was equally fatal to a Spanish claim, based on anything but the sword. Nevertheless, the traditions collected with this object, not only from the Incas at Cuzco, but also from the chiefs of several provinces, are very important and interesting.[2]

The Viceroy Toledo also sent home four cloths on which the pedigree of the Incas was represented. The figures of the successive sovereigns were depicted, with medallions of their wives, and their respective lineages. The events of each reign were recorded on the borders, the traditions of Paccari-tampu, and of the creation by Uiracocha, occupying the first cloth. It is probable that the Inca portraits given by Herrera were copied from those on the cloths sent home by the viceroy. The head-dresses in Herrera are very like that of the high-priest in the *Relacion* of the anonymous Jesuit. A map seems to have accompanied the pedigree, which was drawn under the superintendence of the distinguished sailor and cosmographer, Don Pedro Sarmiento de Gamboa.[3]

Much curious information respecting the laws and customs of the Incas and the beliefs of the people is to be found in ordinances and decrees of the Spanish authorities, both civil and ecclesiastical. These ordinances are contained in the *Ordenanzas del Peru*, of the Licentiate Tomas de Ballesteros, in the *Politica Indiana* of Juan de Solorzano (Madrid, 1649),[4] in the *Concilium Limense* of Acosta, and in the *Constituciones Synodales* of Dr. Lobo Guerrero, Archbishop of Lima, printed in that city in 1614, and again in 1754.

The kingdom of Quito received attention from several early writers, but most of their manuscripts are lost to us. Quito was fortunate, however, in finding a later historian to devote himself to the work of chronicling the story of his native land. Juan de Velasco was a native of Riobamba. He resided for forty years in the kingdom of Quito as a Jesuit priest, he taught and preached in the native language of the people, and he diligently studied all the works on the subject that were accessible to him. He spent six years in travelling over the country, twenty years in collecting books and manuscripts; and when the Jesuits were banished he took refuge in Italy, where he wrote his *Historia del Reino de Quito*. Velasco used several authorities which are now lost. One of these was the *Conquista de la Provincia del Quito*, by Fray Marco de Niza, a companion of Pizarro. Another was the *Historia de las guerras civiles del Inca Atahualpa*, by Jacinto Collahuaso. He also refers to the *Antigüedades del Peru* by Bravo de Saravia. As a native of Quito, Velasco is a strong partisan of Atahualpa; and he is the only historian who gives an account of the traditions respecting the early kings of Quito. The work was completed in 1789, brought from Europe, and printed at Quito in 1844, and M. Ternaux Compans brought out a French edition in 1840.[5]

[1] [Cf. bibliog. of Herrera in Vol. II. pp. 67, 68. — Ed.]

[2] *Informaciones acerca del Señorio y Gobierno de los Ingas hechas, por mandado de Don Francisco de Toledo Virey del Peru* (1570–72). Edited by Don Márcos Jiménez de la Espada, in the *Coleccion de libros Españoles raros ó curiosos*, Tomo xvi. (Madrid, 1882).

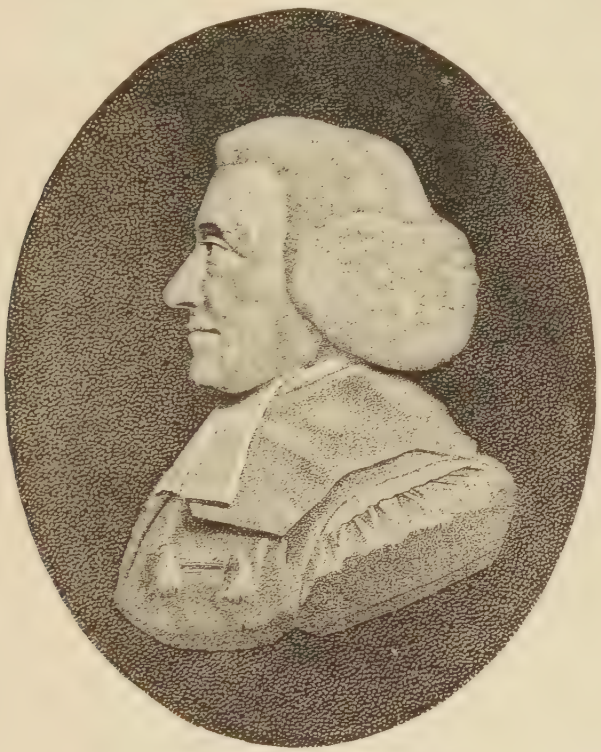
[3] We first hear of Sarmiento in a memorial dated at Cuzco on March 4, 1572, in which he says that he was the author of a history of the Incas, now lost. We further gather that, owing to having found out from the records of the Incas that Tupac Inca Yupanqui discovered two islands in the South Sea, called *Ahuachumpi* and *Ninachumpi*, Sarmiento sailed on an expedition to discover them at some time previous to 1564. Balboa also mentions the tradition of the discovery of these islands by Tupac Yupanqui. Sarmiento seems to have discovered islands which he believed to be those of the Inca, and in 1567 he volunteered to command the expedition dispatched by Lope de Castro, then governor of Peru, to discover the Terra Australis. But Castro gave the command to his own relation, Mandana. We learn, however, from the memorial of Sarmiento, that he accompanied the expedition, and that the first land was discovered through shaping a course in accordance with his advice. Sarmiento submitted a full report of this first voyage of Mandana, which is now lost, to the Viceroy Toledo. In 1579, Sarmiento was sent to explore the Straits of Magellan. In 1586, on his way to Spain, he was captured by an English ship belonging to Raleigh, and was entertained hospitably by Sir Walter at Durham House until his ransom was collected. From the Spanish captive his host obtained much information respecting Peru and its Incas. He could have no higher authority. One of the journals of the survey of Magellan Straits by Sarmiento was published at Madrid in 1768: *Viage al estrecho de Magellanes: por el Capitan Pedro Sarmiento de Gamboa, en los años 1579 y 1580*. See Vol. II. p. 616.

[4] [Cf. Vol. II. p. 571.]

[5] *Historia del Reino de Quito, en la America Meridional, escrita por el Presbitero Don Juan de Velasco*,

Recent authors have written introductory essays on Peruvian civilization to precede the story of the Spanish conquest, have described the ruins in various parts of the country after personal inspection, or have devoted their labors to editing the early authorities, or to bringing previously unknown manuscripts to light, and thus widening and strengthening the foundation on which future histories may be raised.

Robertson's excellent view of the story of the Incas in his *History of America*[1] was for many years the sole source of information on the subject for the general English public; but since 1848 it has been superseded by Prescott's charming narrative contained in the opening book of his *Conquest of Peru*.[2] The knowledge of the present generation on the subject of the Incas is derived almost entirely from Prescott, and, so far as it goes, there can be no better authority. But much has come to light since his time. Prescott's narrative, occupying 159 pages, is founded on the works of Garcilasso de la Vega, who is the authority most frequently cited by him, Cieza de Leon, Ondegardo, and Acosta.[3] Helps, in the chapter of his *Spanish Conquest* on Inca civilization, which covers forty-five pages,



WILLIAM ROBERTSON.*

nativo de Mismo Reino, año de 1789. A Spanish edition, *Quito, Imprenta del Gobierno*, 1844, 3 Tomos, was printed from the manuscript, *Histoire du Royaume de Quito, por Don Juan de Velasco* (*inédite,*) vol. ix. *Voyages, &c., par H. Ternaux Compans* (Paris, 1840). This version, however, covers only a part of the work, of which the second volume only relates to the ancient history. [Cf. Vol. II. p. 576. — Ed.]

1 [Cf. Vol. II. p. 578. — Ed.]

2 [Cf. Vol. II. p. 577; Sabin's *Dictionary*, xv. p. 439. The opinions of Prescott can be got at through *Poole's Index*, p. 993. H. H. Bancroft, *Chronicles*, 25, gives a characteristic estimate of Prescott's archæological labors. Prescott's catalogue of his own library, with his annotations, is in the Boston Public Library, no. 6334.27. — Ed.]

3 Prescott quotes these four authorities 249 times, and all other early writers known to him (Herrera, Zarate, Betanzos, Balboa, Montesinos, Pedro Pizarro, Fernandez, Gomara, Levinus Apollonius, Velasco, and the MS. "Declaracion de la Audiencia") 82 times.

* [After a print in the *European Mag.* (1802), vol. xli. — Ed.]

only cited two early authorities not used by Prescott,[1] and his sketch is much more superficial than that of his predecessor.[2]

The publication of the *Antigüedades Peruanas* by Don Mariano Eduardo de Rivero (the director of the National Museum at Lima) and Juan Diego de Tschudi at Vienna, in 1851, marked an important turning-point in the progress of investigation. One of the authors was himself a Peruvian, and from that time some of the best educated natives of the country have given their attention to its early history. The *Antigüedades* for the first time gives due prominence to an estimate of the language and literature of the Incas, and to descriptions of ruins throughout Peru. The work is accompanied by a large atlas of engravings; but it contains grave inaccuracies, and the map of Pachacamac is a serious blemish to the work.[3] The *Antigüedades* were followed by the *Annals of Cuzco*,[4] and in 1860 the *Ancient History of Peru*, by Don Sebastian Lorente, was published at Lima.[5] In a series of essays in the *Revista Peruana*,[6] Lorente gave the results of many years of further study of the subject, which appear to have been the concluding labors of a useful life. When he died, in November, 1884, Sebastian Lorente had been engaged for upwards of forty years in the instruction of the Peruvian youth at Lima and in other useful labors. A curious genealogical work on the Incarial family was published at Paris in 1850, by Dr. Justo Sahuaraura Inca, a canon of the cathedral of Cuzco, but it is of no historical value.[7]

Several scholars, both in Europe and America, have published the results of their studies relating to the problems of Inca history. Ernest Desjardins has written on the state of Peru before the Spanish conquest,[8] J. G. Müller on the religious beliefs of the people,[9] and Waitz on Peruvian anthropology.[10] The writings of Dr. Brinton, of Philadelphia, also contain valuable reflections and useful information respecting the mythology and native literature of Peru.[11] Mr. Bollaert had been interested in Peruvian researches during the greater part of his lifetime (b. 1807; d. 1876), and had visited several provinces of Peru, especially Tarapaca. He accumulated many notes. His work, at first sight, appears to be merely a confused mass of jottings, and certainly there is an absence of method and arrangement; but closer examination will lead to the discovery of many facts which are not to be met with elsewhere.[12]

A critical study of early authorities and a knowledge of the Quichua language are two essential qualifications for a writer on Inca civilization. But it is almost equally important that he should have access to intelligent and accurate descriptions of the remains of ancient edifices and public works throughout Peru. For this he is dependent on travellers, and it must be confessed that no descriptions at all meeting the requirements were in existence before the opening of the present century. Humboldt was the first traveller in South America who pursued his antiquarian researches on a scientific basis. His works are models for all future travellers. It

1 Calancha and a MS. letter of Valverde. He also refers several times to the *Antigüedades Peruanas* of Tschudi and Rivero.

2 *Spanish Conquest in America*, vol. iii. book xiii. chap. 3, pp. 468 to 513. [Cf. Vol. II. p. 578. — Ed.]

3 It was translated into English as *Peruvian Antiquities*, by Dr. Francis L. Hawkes, of New York, in 1853. [The English translation retained the woodcuts, but omitted the atlas. Cf. Field, *Ind. Bibliog.*, no. 1306; Sabin, xvii. p. 319. There is a French edition, *Antiquités Péruviennes* (Paris, 1859). Dr. Tschudi later published *Reisen durch Süd Amerika*, in five vols. (Leipzig, 1866–69), which was translated into English as *Travels in Peru, 1838–1842*, and published in New York and London. — Ed.]

4 *Los Anales del Cuzco, por Dr. Mesa* (Cuzco, 2 vols.).

5 *Historia Antigua del Peru, por Sebastian Lorente* (Lima, 1860).

6 *Historia de la civilizacion Peruana, Revista de Lima* (Lima, 1880).

7 *Recuerdos de la Monarquia Peruana, ó Bosquejo de la historia de los Incas, por Dr. Justo Sahuaraura Inca, Canonigo en la Catedral de Cuzco* (Paris, 1850).

8 *Le Pérou avant la conquête espagnole, d'après les principaux historiens originaux et quelques documents inédits sur les antiquités de ce pays* (Paris, 1858).

9 *Geschichte der Amerikanischen Urreligionen, von J. G. Müller* (Basel, 1867).

10 *Anthropologie der Naturvölker, von Dr. Theodor Waitz* (4 vols.) Leipzig, 1864.

11 *Myths of the New World, a treatise on the symbolism and mythology of the Red Race of America, by Daniel G. Brinton, M. D.* (New York, 1868). *Aboriginal American authors and their productions, especially those in the native languages, by Daniel G. Brinton, M. D.* (Philadelphia, 1883). [Brinton's writings, however, in the main illustrate the antiquities north of Panama.]

12 *Antiquarian, ethnological and other researches in New Granada, Equador, Peru, and Chile; with observations on the Pre-Incarial, Incarial, and other monuments of Peruvian nations, by William Bollaert, F. R. G. S.* (London, 1860). [Bollaert's minor and periodical contributions, mainly embodied in his final work, are numerous: *Contributions to an introduction to the Anthropology of the New World. Ancient Peruvian graphic Records* (tr. in *Archives de la Soc. Amér. de France*, n. s., i.). *Observations on the history of the Incas* (in the *Transactions Ethnological Soc.*, 1854). — Ed.]

is to Humboldt,[1] and his predecessors the Ulloas,[2] that we owe graphic descriptions of Inca ruins in the kingdom of Quito and in northern Peru as far as Caxamarca. French travellers have contributed three works of importance to the same department of research. M. Alcide D'Orbigny examined and described the ruins of Tiahuanacu with great care.[3] M. François de Castelnau was the leader of a scientific expedition sent out by the French government, and his work contains descriptions of ruins illustrated by plates.[4] The work of M. Wiener is more complete, and is intended to be exhaustive. He was also employed by the French government on an archæological and ethnographic mission to Peru, from 1875 to 1877, and he has performed his task with diligence and ability, while no cost seems to have been spared in the production of his work.[5] The maps and illustrations are numerous and well executed, and M. Wiener visited nearly every part of Peru where archæological remains are to be met with. There is only one fault to be found with the praiseworthy and elaborate works of D'Orbigny and Wiener. The authors are too apt to adopt theories on insufficient grounds, and to confuse their otherwise admirable descriptions with imaginative speculations. An example of this kind has been pointed out by the Peruvian scholar Dr. Villar, with reference to M. Wiener's erroneous ideas respecting *Culte de l'eau ou de la pluie, et le dieu Quonn*.[6] M. Wiener is the only modern traveller who has visited and described the interesting ruins of Vilcas-huaman.

The present writer has published two books recording his travels in Peru. In the first he described the fortress of Hervay, the ancient irrigation channels at Nasca on the Peruvian coast, and the ruins at and around Cuzco, including Ollantay-tampu.[7] In the second there are descriptions of the *chulpas* at Sillustani in the Collao, and of the Inca roof over the Sunturhuasi at Azangaro.[8]

The work of E. G. Squier is, on the whole, the most valuable result of antiquarian researches in Peru that has ever been presented to the pub-

[1] *Vues des Cordillères, ou Monumens des Peuples indigènes de l'Amérique* (Paris, 1810; in 8vo, 1816), called in the English translation, *Researches concerning the institutions and monuments of the ancient inhabitants of America, with descriptions and views of some of the most striking scenes in the Cordilleras. Transl. into English by Helen Maria Williams* (London, 1814). *Voyage aux Régions équinoxiales du Nouveau Continent fait en 1799–1804, avec deux Atlas*, 3 vols. 4to (Paris, 1814–25; and 8vo, 13 vols., 1816–31), called in the English translation, *Personal narrative of travels to the equinoctial regions of America, 1799–1804, by A. von Humboldt [and A. Bonpland]: translated and edited by Thomasina Ross* (Lond., 1852); and in earlier versions by H. M. Williams (London, 1818–1829). [Humboldt's later summarized expressions are found in his *Ansichten der Natur* (Stuttgart, 1849; English tr., *Aspects of Nature*, by Mrs. Sabine, London and Philad., 1849; and *Views of Nature*, by E. C. Otté, London, 1850). Current views of Humboldt's American studies can be tracked through *Poole's Index*, p. 613. — Ed.]

[2] Antonio Ulloa's *Mémoires philosophiques, historiques, physiques, concernant le découverte de l'Amérique* (Paris, 1787). *Voyage historique de l'Amérique Méridionale. fait par ordre du Roy d'Espagne; ouvrage qui contient une histoire des Yncas du Pérou, et des observations astronomiques et physiques, faites pour déterminer la figure et la grandeur de la terre* (Amsterdam, 1732). Or in the English translation, *Voyage to South America by Don Jorge Juan and Don Antonio de Ulloa*, 2 vols. 8vo (London, 1758, 1772; fifth ed. 1807). [Another of the savans in this scientific expedition was Charles M. La Condamine, and we have his observations in his *Journal du Voyage fait à l'Equateur* (1751), and in a paper on the Peruvian monuments in the *Mémoires* of the Berlin Academy (1746). Other early observers deserving brief mention are Pedro de Madriga, whose account is appended to Admiral Jacques d'Heremite's *Journael van de Nassausche Vloot* (Amsterdam, 1632), and AmedéeFrançois Frezier's *Voyage to the South Sea* (London, 1717). — Ed.]

[3] *L'Homme Américain considéré sous ses Rapports Physiologiques et Moraux* (Paris, 1839). [He gives a large ethnological map of South America. His book is separately printed from *Voyages dans l'Amérique Meridionale* (9 vols.) — Ed.]

[4] *Expédition dans les parties centrales de l'Amérique de Sud, exécutée par ordre du Gouvernement Français pendant les annees 1843 à 1847. Troisième partie, Antiquités des Incas* (4to, Paris, 1854).

[5] *Pérou et Bolivie, Récit de voyage suivi d'études archéologiques et ethnographiques et de notes sur l'écriture et les langues des populations Indiennes. Ouvrage contenant plus de 1100 gravures, 27 cartes et 18 plans, par Charles Wiener* (Paris, 1880). [Wiener earlier published two monographs: *Notice sur le communisme des Incas* (Paris, 1874); *Essai sur les institutions politiques, religieuses, économiques et sociales de l'Empire des Incas* (Paris, 1874). — Ed.]

[6] *Uiracocha, por Leonardo Villar* (Lima, 1887).

[7] *Cuzco and Lima* (London, 1856).

[8] *Travels in Peru and India while superintending the collection of chinchona plants and seeds in South America, and their introduction into India* (London, 1862). [Cf. Field's *Indian Bibliog.* for notes on Mr. Markham's book. He epitomizes the accounts of Peruvian antiquities in his *Peru* (London, 1880), of the "Foreign Countries Series." Cf. Vol. II. p. 578. — Ed.]

lic.[1] Mr. Squier had special qualifications for the task. He had already been engaged on similar work in Nicaragua, and he was well versed in the history of his subject. He visited nearly all the ruins of importance in the country, constructed plans, and took numerous photographs. Avoiding theoretical disquisitions, he gives most accurate descriptions of the architectural remains, which are invaluable to the student. His style is agreeable and interesting, while it inspires confidence in the reader; and his admirable book is in all respects thoroughly workmanlike.[2]

Tiahuanacu is minutely described by D'Or-

CLEMENTS R. MARKHAM.*

[1] *Peru, Incidents of travel and exploration in the land of the Incas* (N. Y. 1877; London, 1877). [Squier was sent to Peru on a diplomatic mission by the United States government in 1863, and this service rendered, he gave two years to exploring the antiquities of the country. His *Peru* embodies various separate studies, which he had previously contributed to the *Journal of the American Geographical Society* (vol. iii. 1870–71); the *American Naturalist* (vol. iv. 1870); *Harper's Monthly* (vols. vii., xxxvi., xxxvii.). He contributed "Quelques remarques sur la géographie et les monuments du Pérou" to the *Bulletin de la Société de géographie de Paris*, Jan., 1868. A list of Squier's publications is appended to the Sale *Catalogue* of his Library (N. Y., 1876), which contains a list of his MSS., most of which, it is believed, passed into the collection of H. H. Bancroft. Mr. Squier's closing years were obscured by infirmity; he died in 1888. — Ed.]

[2] [Among the recent travellers, mention may be made of a few of various interests: Edmund Temple's *Travels in Peru* (Lond., 1830); Thomas Sutcliffe's *Sixteen Years in Chili and Peru* (Lond., 1841); S. S. Hill's *Travels in Peru and Mexico* (Lond., 1860); Thos. J. Hutchinson's *Two Years in Peru* (with papers on prehistoric anthropology in the *Anthropological Journal*, iv. 438, and "Some Fallacies about the Incas," in the *Proc. Lit. and Phil. Soc. of Liverpool*, 1873–74, p. 121); Marcoy's *Voyage*, first in the *Tour du Monde*, 1863–64, and then separately in French, and again in English; E. Pertuiset's *Le Trésor des Incas* (Paris, 1877); and Comte d'Ursel's *Sud-Amérique*, 2d ed. (Paris, 1879). F. Hassaurek, in his *Four Years among Spanish Americans* (N. Y., 1867), epitomizes in his ch. xvi. the history of Quito. — Ed.]

* [After a photograph kindly furnished by himself at the editor's request. — Ed.]

bigny, Wiener, and Squier, and the famous ruins have also been the objects of special attention from other investigators. Mr. Helsby of Liverpool took careful photographs of the monolithic doorway in 1857, which were engraved and published, with a descriptive article by Mr. Bollaert.[1] Don Modesto Basadre has also written an account of the ruins, with measurements.[2] But the most complete monograph on Tiahuanacu is by Mr. Inwards, who surveyed the ground, photographed all the ruins, made enlarged drawings of the sculptures on the monolithic doorway, and even attempted an ideal restoration of the palace. In the letter-press, Mr. Inwards quotes from the only authorities who give any account of Tiahuanacu, and on this particular point his monograph entitles him to be considered as the highest modern authority.[3]

Another special investigation of equal interest, and even greater completeness, is represented by the superb work on the burial-ground of Ancon, being the results of excavations made on the spot by Wilhelm Reiss and Alphonso Stübel. The researches of these painstaking and talented antiquaries have thrown a flood of light on the social habits and daily life of the civilized people of the Peruvian coast.[4]

The great work of Don Antonio Raimondi on Peru is still incomplete. The learned Italian has already devoted thirty-eight years to the study of the natural history of his adopted country, and the results of his prolonged scientific labors are now gradually being given to the public. The plan of this exhaustive monograph is a division into six parts, devoted to the geography, geology, mineralogy, botany, zoölogy, and ethnology of Peru. The geographical division will contain a description of the principal ancient monuments and their ruins, while the ethnology will include a treatise on the ancient races, their origin and civilization. But as yet only three volumes have been published. The first is entitled *Parte Preliminar*, describing the plan of the work and the extent of the author's travels throughout the country. The second and third volumes comprise a history of the progress of geographical discovery in Peru since the conquest by Pizarro. The completion of this great work, undertaken under the auspices of the government of Peru, has been long delayed.[5]

The labors of explorers are supplemented by the editorial work of scholars, who bring to light the precious relics of early authorities, hitherto buried in scarcely accessible old volumes or in manuscript. First in the ranks of these laborers in the cause of knowledge, as regards ancient Peruvian history, stands the name of M. Ternaux Compans. He has furnished to the student carefully edited French editions of the narrative of Xeres, of the history of Peru by Balboa, of the *Mémoires Historiques* of Montesinos, and of the history of Quito by Velasco.[6]

[1] *Intellectual Observer*, May, 1863 (London).

[2] *Riquezas Peruanas* (Lima, 1884).

[3] *The temple of the Andes, by Richards Inwards* (London, 1884). [Mr. Markham has also had occasion to speak of these ruins in annotating his edition of Cieza de Leon, p. 374. There is a privately printed book by L. Angrand, *Antiquités Américaines: lettres sur les antiquités de Tiaguanaco, et l'origine présumable de la plus ancienne civilisation du Haut-Pérou* (Paris, 1866). — Ed.]

[4] This superb work was issued at Berlin and London with German and English texts. The English title reads, *Peruvian Antiquities: the Necropolis of Ancon in Peru. A contribution to our knowledge of the culture and industries of the empire of the Incas. Being the results of excavations made on the spot.* Translated by A. H. Keane. With the aid of the general administration of the royal museums of Berlin (Berlin, 1880–87); in three folio volumes, with 119 colored and plain plates. The divisions are: 1. The Necropolis and its graves. 2. Garments and textiles. 3. Ornaments, utensils, earthenware; evolution of ornamentation, with treatises by L. Wittmack on the plants found in the graves; R. Virchow on the human remains, and A. Nehring on the animals. [A few of the plates are reproduced in black and white in Ruge's *Geschichte des Zeitalters der Entdeckungen.* The authors represent that the graveyard of Ancon, an obscure place lying near the coast, north of Lima, was probably the burial-place of a poor people; but its obscurity has saved it to us while important places have been ransacked and destroyed. The reader will be struck with the richness of the woven materials, which are so strikingly figured in the plates. On this point Stübel published in Dresden in 1888, as a part of the *Festschrift* of the twenty-fifth anniversary of the "Verein für Erdkunde," a paper *Ueber altperuanische Gewebemuster und ihnen analoge Ornamente der altklassischen Kunst* (Dresden, 1888). Some of the plates in the larger work impress one with the great variety of ornamenting skill. The collection formed by John H. Blake from an ancient cemetery on the bay of Chacota, now in the Peabody Museum at Cambridge, Mass., is described in the *Reports* of that institution, xi. 195, 277. Reference may also be made to B. M. Wright's *Description of the collection of gold ornaments from the "huacas," or graves of some aboriginal races of the northwestern provinces of South America, belonging to Lady Brassey* (London, 1885). — Ed.]

[5] Antonio Raimondi. *El Peru. Tomo I. Parte Preliminar, 4to, pp. 444* (Lima, 1874). *Tomo II. Historia de la Geografia del Peru, 4to, pp. 475* (Lima, 1876). *Tomo III. Historia de la Geografia del Peru, 4to, pp. 614* (Lima, 1880).

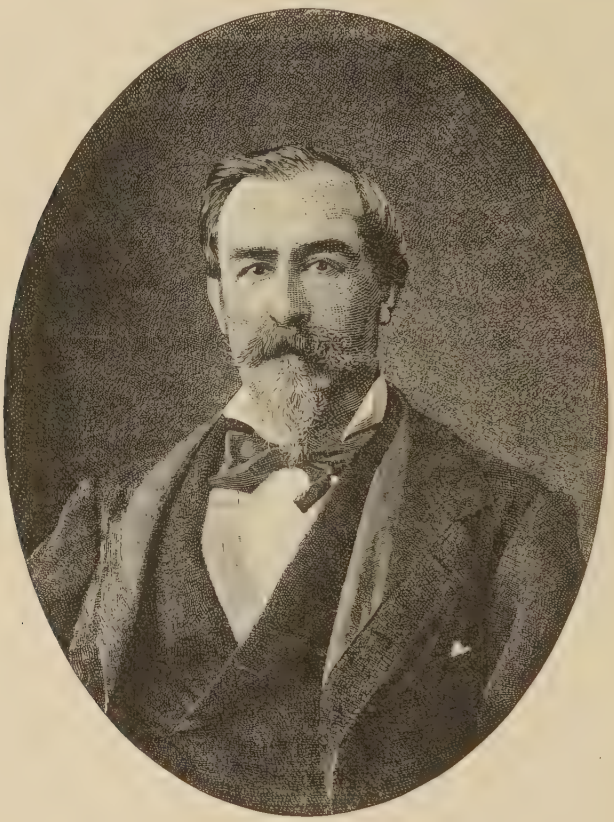
[6] *Voyages, Relations et Mémoires Originaux pour servir à l'Histoire de la Découverte de l'Amérique*, 20 vols. in 10, 8vo (Paris, 1837–41). See Vol. II., introd. p. vi.

The present writer has translated into English and edited the works of Cieza de Leon, Garcilasso de la Vega, Molina, Salcamayhua, Avila, Xeres, Andagoya, and one of the reports of Ondegardo, and has edited the old translation of Acosta.

Dr. M. Gonzalez de la Rosa, an accomplished Peruvian scholar, brought to light and edited, in 1879, the curious *Historia de Lima* of Father Bernabé Cobo. It was published in successive numbers of the *Revista Peruana*, at Lima.

But in this department students are most indebted to the learned Spanish editor, Don Márcos Jiménez de la Espada; for he has placed within our reach the works of important authorities, which were previously not only inaccessible, but unknown. He has edited the second part of Cieza de Leon, the anonymous Jesuit, Montesinos, Santillana, the reports to the Viceroy Toledo, the *Suma y Narracion* of Betanzos, and the *War of Quito*, by Cieza de Leon. Moreover, there is every reason to hope that his career of literary usefulness is by no means ended.

Although so much has been accomplished in the field of Peruvian research, yet much remains to be done, both by explorers and in the study. The Quichua chapters of the work of Avila, containing curious myths and legends, remain untranslated and in manuscript. A satisfactory text of the Ollantay drama, after collation of all accessible manuscripts, has not yet been secured. Numerous precious manuscripts have yet to be unearthed in Spain. Songs of the times of the Incas exist in Peru, which should be collected and edited. There are scientific excavations to be undertaken, and secluded districts to be explored. The Yunca grammar of Carrera requires expert comparative study, and comparison with the Eten dialect. Remnants of archaic languages, such as the Puquina of the Urus, must be investigated. When all this, and much more, has been added to existing means of knowledge, the labors of pioneers will ap-



MÁRCOS JIMÉNEZ DE LA ESPADA.*

* [After a photograph, kindly furnished by himself, at the editor's request. — Ed.]

proach completion. Then the time will have arrived for the preparation of a history of ancient Peruvian civilization which will be worthy of the subject.[1]

Clements R Markham

[1] [Among less important or more general later writers on this ancient civilization may be mentioned: Charles Labarthe's *La Civilisation péruvienne avant l'arrivée des Espagnols* (*Archives de la Soc. Amér. de France*, n. s., i.), and his paper from the *Annuaire Ethnographique*, on the "Documents inédits sur l'empire des Incas" (Paris, 1861); Rudolf Falb's *Das Land der Inca in seiner Bedeutung für die Urgeschichte der Sprache und Schrift* (Leipzig, 1883); Lieut. G. M. Gilliss, in Schoolcraft's *Ind. Tribes*, v. 657; Dr. Macedo's comparison of the Inca and Aztec civilizations in the *Proc. of the Numism. and Antiq. Soc.* (Philad. 1883); Vicomte Th. de Bussière's *Le Pérou* (Paris, 1863); beside chapters in such comprehensive works as those of Nadaillac, Ruge, Baldwin, Wilson (*Prehistoric Man*), and the papers of Castaing and others in the *Archives de la Soc. Amér. de France*, and an occasional paper in the *Journals* of the American and other geographical and ethnological societies. Current English comment is reached through *Poole's Index*, pp. 627, 992. — Ed.]

NOTES.

I. Ancient People of the Peruvian Coast. — There was a civilized people on the coast of Peru, but not occupying the whole coast, which was distinctly different, both as regards race and language, from the Incas and their cognate tribes. This coast nation was called *Chimu*, and their language *Mochica*.[1]

The numerous valleys on the Peruvian coast, separated by sandy deserts of varying width, required only careful irrigation to render them capable of sustaining a large population. The aboriginal inhabitants were probably a diminutive race of fishermen. Driven southwards by invaders, they eventually sought refuge in Arica and Tarapaca. D'Orbigny described their descendants as a gentle, hospitable race of fishermen, never exceeding five feet in height, with flat noses, fishing in boats of inflated sealskins, and sleeping in huts of sealskin on heaps of dried seaweed. They are called Changos. Bollaert mentions that they buried their dead lengthways. Bodies found in this unusual posture near Cañete form a slight link connecting the Changos to the south with the early aboriginal race of the more northern valleys.

The *Chimu* people drove out the aborigines and occupied the valleys of the coast from Payta nearly to Lima, forming distinct communities, each under a chief more or less independent. The *Chimu* himself ruled over the five valleys of Parmunca, Hualli, Huanapu, Santa, and Chimu, where the city of Truxillo now stands. The total difference of their language from Quichua makes it clear that the Chimus did not come from the Andes or from the Quito country. The only other alternative is that they arrived from the sea. Balboa, indeed, gives a detailed account of the statements made by the coast Indians of Lambayeque, at the time of the conquest. They declared that a great fleet arrived on the coast some generations earlier, commanded by a chief named Noymlap, who had with him a green-stone idol, and that he founded a dynasty of chiefs.

The *Chimu* and his subjects, let their origin be what it may, had certainly made considerable advances in civilization. The vast palaces of the Chimu near the seashore, with a surrounding city, and great mounds or artificial hills, are astonishing even in their decay. The principal hall of the palace was 100 feet long by 52. The walls are covered with an intricate and very effective series of arabesques on stucco, worked in relief. A neighboring hall, with walls stuccoed in color, is entered by passages and skirted by openings leading to small rooms seven feet square, which may have been used as dormitories. A long corridor leads from the back of the arabesque hall to some recesses where gold and silver vessels have been found. At a short distance from this palace there is a sepulchral mound where many relics have been discovered. The bodies were wrapped in cloths woven in ornamental figures and patterns of different colors. On some of the cloths plates of silver were sewn, and they were edged with borders of feathers, the silver plates being occasionally cut in the shapes of fishes and birds. Among the ruins of the city there are great rectangular areas enclosed by massive walls, containing buildings, courts, streets, and reservoirs for water.[2] The largest is about a mile south of the palace, and is 550 yards long by 400. The outer wall is about 30 feet high and 10 feet thick at the base, with sides inclining towards each other. Some of the interior walls are highly ornamented in stuccoed patterns; and in

[1] [Humboldt (*Views of Nature*, 235) points out that the name Chimborazo is probably a relic of this earlier tongue. — Ed.]

[2] [Wiener, *Pérou et Bolivie*, p. 98, gives a plan of the neighborhood of Truxillo, showing the position "du Gran Chimu," and an enlarged plan of the ruins. — Ed.]

one part there is an edifice containing 45 chambers or cells, which is supposed to have been a prison. The enclosure also contained a reservoir 450 feet long by 195, and 60 feet deep.

The dry climate favored the adornment of outer walls by color, and those of the Chimu palaces were covered with very tasteful sculptured patterns. Figures of colored birds and animals are said to have been painted on the walls of temples and palaces. Silver and gold ornaments and utensils, mantles richly embroidered, robes of feathers, cotton cloths of fine texture, and vases of an infinite variety of curious designs, are found in the tombs.

Cieza de Leon gives us a momentary glimpse at the life of the Chimu chiefs. Each ruler of a valley, he tells us, had a great house with adobe pillars, and doorways hung with matting, built on extensive terraces. He adds that the chiefs dressed in cotton shirts and long mantles, and were fond of drinking-bouts, dancing and singing. The walls of their houses were painted with bright colored patterns and figures. Such places, rising out of the groves of fruit-trees, with the Andes bounding the view in one direction and the ocean in the other, must have been suitable abodes for joy and feasting. Around them were the fertile valleys, peopled by industrious cultivators, and carefully irrigated. Their irrigation works were indeed stupendous. "In the valley of Nepeña the reservoir is three fourths of a mile long by more than half a mile broad, and consists of a massive dam of stone 80 feet thick at the base, carried across a gorge between two rocky hills. It was supplied by two canals at different elevations; one starting fourteen miles up the valley, and the other from springs five miles distant."[1]

The custom prevalent among the Chimus of depositing with their dead all objects of daily use, as well as ornaments and garments worn by them during life, has enabled us to gain a further insight into the social history of this interesting people. The researches of Reuss and Stübel at the necropolis of Ancon, near Lima, have been most important. Numerous garments, interwoven with work of a decorative character, cloths of many colors and complicated patterns, implements used in spinning and sewing, work-baskets of plaited grass, balls of thread, finger-rings, wooden and clay toys, are found with the mummies. The spindles are richly carved and painted, and attached to them are terra cotta cylinders aglow with ornamental colorings which were used as wheels. Fine earthenware vases of varied patterns, and wooden or clay dishes, also occur.

SECTION OF A MUMMY-CASE FROM ANCON.*

Turning to the language of the coast people, we find that no Mochica dictionary was ever made; but there is a grammar and a short list of words by Carrera, and the Lord's prayer in Mochica, by Bishop Oré. The grammar was composed by a priest who had settled at Truxillo, near the ruins of the Chimu palace, and who was a great-grandson of one of the first Spanish conquerors. It was published at Lima in 1644. At that time the Mochica language was spoken in the valleys of Truxillo, Chicama, Chocope, Sana, Lambayeque, Chiclayo, Huacabamba, Olmos, and Motupè. When the *Mercurio Peruano*[2] was published in 1793, this language is said to have entirely disappeared. Father Carrera tells us that the Mochica was so very difficult that he was the only Spaniard who had ever been able to learn it. The words bear no resemblance whatever to Quichua. Mochica has three different declensions, Quichua only one. Mochica has no transitive verbs, and no exclusive and inclusive plurals, which are among the chief characteristics of Quichua. The Mochica conju-

[1] Squier, 210.

[2] [There are two or three Peruvian periodicals of some importance for their archæological papers. The *Mercurio Peruano de Historia, Literatura y Noticias publicas que da a luz la Sociedad Academica de Amantes de Lima* (Lima, 1791–1795), appeared in twelve volumes. It is often defective, and the Spanish government finally interdicted it, as it was considered revolutionary in principle. It was edited at one time by the Père Cisneros. There is a set in Harvard College library.

The *Revista Peruana* (Lima) has been the channel of some important archæological contributions. Others appeared in the *Museo Erudito, o los Tiempos y las Costumbres* (Cuzco, 1837, etc.) — Ed.]

* [After a cut given by Ruge, following a plate in *The Necropolis of Ancon*. Wiener (p. 44) gives a section of one of the Ancon tombs. See a cut in Squier's *Peru*, p. 73. — Ed.]

gations are formed in quite a different way from those in the Quichua language. The Mochica system of numerals appears to have been very complete. With the language, the people have now almost if not entirely disappeared. Possibly the people of Eten, south of Lambayeque, who still speak a peculiar language, may be descendants of the Chimus.

The Chimu dominion extended probably from Tumbez, in the extreme north of the Peruvian coast, to Ancon, north of Lima. The Chimus also had a strong colony in the valley of Huarcu, now called Cañete. But the valleys of the Rimac, of Lurin, Chilca, and Mala, north of Cañete; and those of Chincha, Yca, and Nasca, south of Cañete; were not Chimu territory. The names of places in those valleys are all Quichua, as well as the names of their chiefs, as recorded by Garcilasso de la Vega and others. The inhabitants were, therefore, of Inca race, probably colonists from the Huanca nation. Their superstitions as told by Arriaga, and the curious mythological legends recorded by Avila as being believed by the people of Huarochiri and the neighboring coast, all point to an Inca origin. These Inca coast people are said to have had a famous oracle near the present site of Lima, called "Rimac," or "He who speaks." But more probably it was merely the name given to the noisy river Rimac, babbling over its stones. It is true that there was a temple on the coast with an oracle, the fame of which had been widely spread. The idol called Pachacamac, or "The world-creator," was described by the first Spanish visitor, Miguel Estete, as being made of wood and very dirty. The town was then half in ruins, for the worship of this local deity was neglected after the conquest by the Incas. These coast people of Inca race were as industrious as their Chimu neighbors. In the Nasca valley there is a complete network of underground water-courses for irrigation. At Yca "they removed the sand from vast areas, until they reached the requisite moisture, then put in guano from the islands, and thus formed sunken gardens of extraordinary richness."[1] Similar methods were adopted in the valleys of Pisco and Chilca.

MUMMY FROM A HUACA AT PISCO.*

When the Inca Pachacutec began to annex the coast valleys, he met with slight opposition only from the people of Inca origin, who soon submitted to his rule. But the Chimus struggled hard to retain their independence. Those of the Huarcu (*Cañete*) valley made a desperate and prolonged resistance. When at length they submitted, the Inca built a fortress and palace on a rocky eminence overlooking the sea to overawe them. The ruins now called Hervai are particularly interesting, because they are the principal and most imposing example of Inca architecture in which the building material is adobes and not stone. The conquest of the valleys to the north of Lima and of the grand Chimu himself was a still more difficult undertaking, necessitating more than one hard-fought campaign. When it was completed, great numbers of the best fighting-men among the Chimus were deported to the interior as *mitimaes*. More than a century had elapsed since this conquest when the Spaniards arrived, so that there was but slight chance of the history of the Chimus being even partially preserved. Cieza de Leon and Balboa alone supply us with notices of any value.[2] The southern valleys of the coast, Arequipa, Moquegua, and Tacna, were occupied by *mitimaes* or colonists from the Collao. The Incas gave the general name of *yuncas*, or dwellers in the warm valleys, to all the people of the coast.

Much mystery surrounds the history and origin of the *Chimu* people. That they were wholly separate and unconnected with the other races of Peru seems almost certain. That they were far advanced in civilization is clear. Difficulties surround any further prosecution of researches concerning them. They have themselves disappeared from the face of the earth. Their language has gone with them. But there are the magnificent ruins of their palaces and temples. There are numerous tombs and cemeteries which have never been scientifically examined. There is a grammar and a small vocabulary of words calling for close comparative examination. There are crania awaiting similar comparative study. There is a possibility that further information

[1] Squier.

[2] I do not now believe that the idolatrous practices and legends, preserved by Arriaga and Avila, had any connection with the *Chimu* race.

* [After a cut in T. J. Hutchinson's *Two Years in Peru* (London, 1873), vol. i. p. 113. The Peruvian mummies are almost invariably simply desiccated. Only the royal personages were embalmed (Markham's *Cieza de Leon*, 226). Cf. Wilson's *Prehistoric Man*, ii. 135. — Ed.]

may be gleaned from inedited Spanish manuscripts. The subject is a most interesting one, and it is by no means exhausted.

II. The Quichua Language and Literature. — No real progress can be made in the work of elucidating the ancient history of Peru, and in unravelling the interesting but still unsolved questions relating to

TAPESTRY FROM THE GRAVES OF ANCON.*

the origin and development of Inca civilization, without a knowledge of the native language. The subject has accordingly received the close attention of laborious students from a very early period, and the present essay would be incomplete without appending an enumeration of the Quichua grammars and vocabularies, and of works relating to Inca literature.

Fray Domingo de San Tomas, a Dominican monk, was the first author who composed a grammar and vocabulary of the language of the Incas. He gave it the name of Quichua, probably because he had studied

* [After a cut in Ruge's *Geschichte des Zeitalters der Entdeckungen*, p. 429, following the colored plate in *The Necropolis of Ancon*. Wiener reproduces in black and white many of the Ancon specimens. — Ed.]

with members of that tribe, who were of pure Inca race, and whose territory lies to the westward of Cuzco. The name has since been generally adopted for the language of the Peruvian empire.[1]

Diego de Torres Rubio was born in 1547, in a village near Toledo, became a Jesuit at the age of nineteen, and went out to Peru in 1577. He studied the native languages with great diligence, and composed grammars and vocabularies. His grammar and vocabulary of Quichua first appeared at Saville in 1603, and passed through four editions.[2] A long residence in Chuquisaca enabled him to acquire the Aymara language, and in 1616 he published a short grammar and vocabulary of Aymara. In 1627 he also published a grammar of the Guarani language. Torres Rubio was rector of the college at Potosi for a short time, but his principal labors were connected with missionary work at Chuquisaca. He died in that city at the great age of ninety-one, on the 13th of April, 1638. Juan de Figueredo, whose Chinchaysuyu vocabulary is bound up with later editions of Torres Rubio, was born at Huancavelica in 1648, of Spanish parents, and after a long and useful missionary life he died at Lima in 1724.

The most voluminous grammatical work on the language of the Incas had for its author the Jesuit Diego Gonzales Holguin. This learned missionary was the scion of a distinguished family in Estremadura, and was befriended in his youth by his relation, Don Juan de Obando, President of the Council of the Indies. After graduating at Alcalá de Henares he became a member of the Society of Jesus in 1568, and went out to Peru in 1581. He resided for several years in the Jesuit college at Juli, near the banks of Lake Titicaca, where the fathers had established a printing-press, and here he studied the Quichua language. He was entrusted with important missions to Quito and Chili, and was nominated interpreter by the Viceroy Toledo. His later years were passed in Paraguay, and when he died at the age of sixty-six, in 1618, he was rector of the college at Asuncion. His Quichua dictionary was published at Lima in 1586, and a second edition appeared in 1607,[3] the same year in which the grammar first saw the light.[4] The Quichua grammar of Holguin is the most complete and elaborate that has been written, and his dictionary is also the best in every respect.

While Holguin was studiously preparing these valuable works on the Quichua language in the college at Juli, a colleague was laboring with equal zeal and assiduity at the dialect spoken by the people of the Collao, to which the Jesuits gave the name of Aymara. Ludovico Bertonio was an Italian, a native of the marches of Ancona. Arriving in Peru in 1581, he resided at Juli for many years, studying the Aymara language, until, attacked by gout, he was sent to Lima, where he died at the age of seventy-three, in 1625. His Aymara grammar was first published at Rome in 1603,[5] but a very much improved second edition,[6] and a large dictionary of Aymara,[7] were products of the Jesuit press at Juli in 1612. Bertonio also wrote a catechism and a life of Christ in Aymara, which were printed at Juli.

A vocabulary of Quichua by Fray Juan Martinez was printed at Lima in 1604, and another in 1614. Four Quichua grammars followed during the seventeenth century. That of Alonso de Huerta was published at Lima in 1616; the grammar of the Franciscan Diego de Olmos appeared in 1633; Don Juan Roxo Mexia y Ocon, a native of Cuzco, and professor of Quichua at the University of Lima, published his grammar in 1648; and the grammar of Estevan Sancho de Melgar saw the light in 1691.[8] Leon Pinelo also mentions a Quichua grammar by Juan de Vega. The anonymous Jesuit refers to a Quichua dictionary by Melchior Fernandez, which is lost to us.

In 1644 Don Fernando de la Carrera, the Cura of Reque, near Chiclayo, published his grammar of the Yunca language, at Lima. This is the language which was once spoken in the valleys of the Peruvian coast by the

[1] *Grammatica o Arte de la lengua general de los Indios de los Reynos del Peru, nuevamente compuesta por el Maestro Fray Domingo de S. Thomas de la orden de S. Domingo, Morador en los dichos reynos. Impresso en Valladolid por Francisco Fernandez de Cordova, 1560. Lexicon ó Vocabulario de la lengua general del Peru, llamada Quichua* (Valladolid, 1560). The grammar and vocabulary are usually bound up together. [The two were priced respectively by Leclerc, in 1878, at 2,500 and 600 francs. — Ed.]

The grammar and vocabulary of San Tomas were reprinted at Lima in 1586 by Antonio Ricardo. In the list given by Rivero and Von Tschudi (*Antigüedades Peruanas*, p. 99), the printer Ricardo is entered as the author of this Lima edition of San Tomas.

[2] *Grammatica y Vocabulario en la lengua general del Peru llamada Quichua por Diego de Torres Rubio S. S.* (Seville, 1603). [This original edition is of great rarity. Quaritch, in 1885, asked £20 for a defective copy. — Ed.] A second edition was printed at Lima in 1619; and a third in 1700. To this third edition a vocabulary was added of the Chinchaysuyu dialect, by Juan de Figueredo. A fourth edition was published at Lima in 1754, also containing the Chinchaysuyu vocabulary, which is spoken in the north of Peru. [For this 1754 edition see Leclerc, no. 2409. It is worth about $50. — Ed.]

[3] *Vocabulario de la Lengua general de todo el Peru llamada lengua Quichua ó del Inca.* En la ciudad de los Reyes, 1586. Second edition printed by Francisco del Canto, 1607 (2 vols. 4to). [Leclerc (no. 2401), in 1879, priced this ed. at 2,000 francs; Quaritch, a defective copy, £21.— Ed.]

[4] *Gramatica y Arte nueva de la lengua general de todo el Peru llamada lengua Quichua o Lengua del Inca por Diego Gonzales Holguin de la Compañia de Jesus, natural de Caceres Impresso en la Ciudad de los Reyes del Peru, por Francisco del Canto, 1607.* [Leclerc, 1879, no. 2402, 500 francs. — Ed.] A second edition was published at Lima in 1842.

[5] *Arte y gramatica muy copiosa de la lengua Aymará con muchos y variados modos de hablar* (Roma, 1603).

[6] *Arte de la lengua Aymará con una selva de frases en la misma lengua y su declaracion en romance. Impresso en la casa de la Compañia de Jesus de Juli en la provincia de Chucuyto. Por Francisco del Canto, 1612.* pp. 348.

[7] *Vocabulario de la lengua Aymara, Juli 1612*, Spanish and Aymara, pp. 420, Aymara and Spanish, pp. 378. [Priced by Quaritch in 1885 at £60; by Leclerc in 1879 at 2,000 francs. — Ed.]

[8] *Arte de la lengua general del ynga llamada Quechhua* (Lima, 1691). Leclerc, 1879. 250 francs.

civilized people whose ruler was the grand Chimu. Now the language is extinct, or spoken only by a few Indians in the coast village of Eten. The work of Carrera is therefore important, as, with the exception of a specimen of the language preserved by Bishop Oré, it is the only book in which the student can now obtain any linguistic knowledge of the lost civilization. The Yunca grammar was reprinted in numbers in the *Revista de Lima* of 1880 and following years.[1]

There was a professorial chair for the study of Quichua in the University of San Márcos at Lima, and the language was cultivated, during the two centuries after the conquest, as well by educated natives as by many Spanish ecclesiastics. The sermons of Dr. Don Fernando de Avendaño have already been referred to.[2] Dr. Lunarejo, of Cuzco, was another famous Quichuan preacher, and the *Confesionarios* and catechisms in the language were very numerous. Bishop Louis Geronimo Oré, of Guamanga, in his ritualistic manual, gives the Lord's prayer and commandments, not only in Quichua and Aymara, but also in the Puquina language spoken by the Urus on Lake Titicaca, and in the Yunca language of the coast, which he calls Mochica.[3]

A very curious book was published at Lima in 1602, which, among other things, treats of the Quichua language and of the derivations of names of places. The author, Don Diego D'Avalos y Figueroa, appears to have been a native of La Paz. He was possessed of sprightly wit, was well read, and a close observer of nature. We gather from his *Miscelanea Austral*[4] the names of birds and animals, and of fishes in Lake Titicaca, as well as the opinions of the author on the cause of the absence of rain on the Peruvian coast, on the lacustrine system of the Collao, and on other interesting points of physical geography.[5]

In modern times the language of the Incas has received attention from students of Peruvian history. The joint authors, Dr. Von Tschudi and Don Mariano Eduardo de Rivero, in their work entitled *Antigüedades Peruanas*, published at Vienna in 1851, devote a chapter to the Quichua language. Two years afterwards Dr. Von Tschudi published a Quichua grammar and dictionary, with the text of the Inca drama of Ollantay, and other specimens of the language.[6] The present writer's contributions towards a grammar and dictionary of Quichua were published by Trübner in 1864, and a few years previously a more complete and elaborate work had seen the light at Sucre, the capital of Bolivia. This was the grammar and dictionary by Father Honorio Mossi, of Potosi, a large volume containing thorough and excellent work.[7] Lastly a Quichua grammar by José Dionisio Anchorena was published at Lima in 1874.[8]

The curious publication of Don José Fernandez Nodal in 1874 is not so much a grammar of the Quichua language as a heterogeneous collection of notes on all sorts of subjects, and can scarcely take a place among serious works. The author was a native of Arequipa, of good family, but he was carried away by enthusiasm and allowed his imagination to run riot.[9]

The gospel of St. Luke, with Aymara and Spanish in parallel columns, was translated from the vulgate by Don Vicente Pazos-kanki, a graduate of the University of Cuzco, and published in London in 1829;[10] and more recently a Quichua version of the gospel of St. John, translated by Mr. Spilsbury, an English missionary, has appeared at Buenos Ayres.[11] These publications and others of the same kind have a tendency to preserve the purity of the language, and are therefore welcome to the student of Incarial history.

Quichua has been the subject of detailed comparative study by more than one modern philologist of eminence. The discussion of the Quichua roots by the learned Dr. Vicente Fidel Lopez is a most valuable addition to the literature of the subject; while the historical section of his work is a great aid to a critical consideration of Montesinos and other early authorities. Whatever may be thought of his theoretical opinions,

[1] *Arte de la lengua Yunga de los valles del Obispado de Truxillo, con un confesionario, y todos las ovaciones cristianas y otras casas. Autor el beneficiado Don Fernando de la Carrera Cura y Vicario de San Martin de Reque en el corregimiento de Chiclayo* (Lima, 1644).

This work is extremely rare. Only three copies are known to exist, one in the library at Madrid, one in the British Museum, which belonged to M. Ternaux Compans, and one in possession of Dr. Villar, in Peru. A copy was made for William von Humboldt from the British Museum copy, which is now in the library at Berlin.

The *Arte de la lengua Yunga* was reprinted in numbers of the *Revista de Lima* in 1880, under the editorial supervision of Dr. Gonzalez de la Rosa.

[2] *Sermones de los misterios de nuestra Santa Fé catolica, en lengua Castellana, y la general del Inca. Impugnanse los errores particulares que los Indios han tenido, por el Doctor Don Fernando de Avendaño, 1648.* Rivero and Von Tschudi give some extracts from these sermons in the *Antiguedades Peruanas*, p. 108.

[3] *Rituale seu Manuale Peruanum juxta ordinem Sanctæ Romanæ Ecclesiæ, per R. P. F. Ludovicum Hieronymum Orerum* (Neapoli, 1607).

[4] Carter-Brown, ii. 7.

[5] *Primera parte de la miscelanea austral de Don Diego D'Avalos y Figueroa en varias coloquias, interlocutores Delia y Cilena, con la defensa de Damas. Impreso en Lima por Antonio Ricardo, año 1602.*

[6] *Die Kechua Sprache, I.; Sprachlehre, II.; Wörterbuch, von J. J. Von Tschudi* (Wien, 1853).

[7] *Gramatica y Diccionario de la lengua general de Peru, llamada comunmuente Quichua, por el R. P. Fr. Honorio Mossi, Misionero Apostolico del colejio de propaganda fide de la ciudad de Potosi* (Sucre, 1859). [An earlier *Gramática y Ensayo* was published at Sucre in 1857. Leclerc says it has become very rare. — Ed.]

[8] *Gramatica Quichua o del idioma del Imperio de los Incas, por José Dionisio Anchorena* (Lima, 1874).

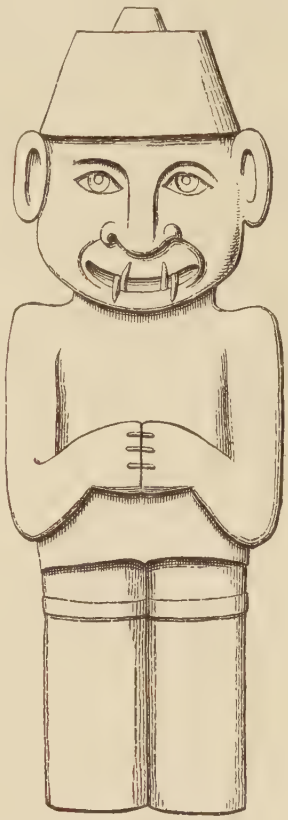
[9] *Elementos de Gramatica Quichua ó idioma de los Yncas por el Dr. José Fernandez Nodal.* The book was printed in England in 1874.

[10] *El Evangelio de Jesu Christo segun San Lucas en Aymara y Español, traducido de la vulgata Latin al Aymará por Don Vicente Pazos-kanki, Doctor de la Universidad del Cuzco e Individuo de la Sociedad Historica de Neuva York* (Londres, 1829).

[11] *Apunchis Santa Yoancama Ehuangeliun, Quichua cayri Ynca siminpi quillkcasca. El Santo Evangelio de Nuestro Señor Jesu-Christo segun San Juan, traducido del original a la lengua Quichua o del Ynca; por el Rev. J. H. Gybbon Spilsbury, Buenos Aires, 1880.*

and of the considerations by which he maintains them, there can be no doubt that Dr. Lopez has rendered most important service to all students of Peruvian history.[1] The theoretical identification of Quichuan roots with those of Turanian and Iberian languages, as it has been elaborated by Mr. Ellis, is also not without its use, quite apart from the truth or otherwise of any linguistic theory.[2]

Editorial labors connected with the publication of the text and of translations of the Inca drama of Ollantay have recently conduced, in an eminent degree, to the scholarly study of Quichua, while they have sensibly contributed to a better knowledge of the subject. Von Tschudi was the first to publish the text of Ollantay, in the second part of his *Kechua Sprache*, having given extracts from the drama in the chapter on the Quichua language in the *Antigüedades Peruanas*. After a long interval he brought out a revised text with a parallel German translation,[3] from his former manuscript, collated with another bearing the date of La Paz, 1735.



FROM TIMANÁ.*

The drama, in the exact form that it existed when represented before the Incas, is of course lost to us. It was handed down by tradition until it was arranged for representation, divided into scenes, and supplied with stage directions in Spanish times. Several manuscripts were preserved, which differ only slightly from each other; and they were looked upon as very precious literary treasures by their owners. The drama was first publicly brought to notice by Don Manuel Palacios, in the *Museo Erudito*, a periodical published at Cuzco in 1837; but it was not until 1853 that the text was printed by Von Tschudi. His manuscript was copied from one preserved in the Dominican monastery at Cuzco by one of the monks. The transcription was made between 1840 and 1845 for the artist Rugendas, of Munich, who gave it to Von Tschudi. There was another old manuscript in the possession of Dr. Antonio Valdez, the priest of Sicuani, who lived in the last century, and was a friend of the unfortunate Tupac Amaru. Dr. Valdez died in 1816; and copies of his manuscript were possessed by Dr. Pablo Justiniani, the aged priest of Laris, a village in the heart of the eastern Andes, and by Dr. Rosas, the priest of Chinchero. The present writer made a copy of the Justiniani manuscript at Laris, which he collated with that of Dr. Rosas. In 1871 he published the text of his copy, with an attempt at a literal English translation.[4] In 1868 Dr. Barranca published a Spanish translation from the text of Von Tschudi, now called the Dominican text.[5] The Peruvian poet Constantino Carrasco afterwards brought out a version of the drama of Ollantay in verse, paraphrased from the translation of Barranca.[6] The enthusiastic Peruvian student, Dr. Nodal, printed a different Quichua text with a Spanish translation, in parallel columns, in 1874.[7]

There are other manuscripts, and a text has not yet been derived from a scholarly collation of the whole of them. There is one in the possession of Dr. Gonzalez de la Rosa, which belonged to Dr. Justo Sahuaraura Inca, Archdeacon of Cuzco, and descendant of Paullu, the younger son of Huayna Ccapac. In 1878 the Quichua scholar and native of Cuzco, Don Gavino Pacheco Zegarra, published the text of Ollantay at Paris, from a manuscript found among the books of his great-uncle, Don Pedro Zegarra. He added a very free translation in French, and numerous valuable notes. The work of Zegarra is by far the most important that has appeared on this subject, for the accomplished Peruvian has the great advantage of knowing Quichua

[1] *Les Races Aryennes du Pérou, leur langue, leur religion, leur histoire, par Vicente Fidel Lopez* (Paris et Montevideo, 1871). [Lopez's book was subjected to an examination by Lucien Adam, in a paper, "Le Quichua, est il une langue aryenne?" in the Luxembourg *Compte-Rendu du Congrès des Américanistes*, ii. 75. Cf. *Macmillan's Mag.*, xxvii. 424, by A. Lang. — Ed.]

[2] *Peruvia Scythica. The Quichua language of Peru: its derivation from Central Asia, with the American anguages in general, and with the Turanian and Iberian languages of the Old World, including the Basque, the lLycian, and the Pre-Aryan language of Etruria; by Robert Ellis, B. D.* (Trübner & Co., London, 1875).

[3] *Ollanta: ein Altperuanisches Drama aus der Kechuasprache, übersetzt und commentirt von J. J. von Tschudi* (Wien, 1875).

[4] *Ollanta, an ancient Inca Drama*, by Clements R. Markham (London, 1871).

[5] *Ollanta o sea la severidad de un padre y la clemencia de un rey drama traducido del Quichua al Castellano por José S. Barranca* (Lima, 1868).

[6] *Ollanta por Constantino Carrasco* (Lima, 1876).

[7] *Los vinculos de Ollanta y Cusi Kcoyllor, Drama en Quichua. José Fernandez Nodel.* Dr. Nodal commenced, but never completed, an English translation.

* [After a cut in William Bollaert's *Antiquarian Researches*, etc., p. 41, showing a stone figure from Timana in New Granada, an antiquity of the Muiscas, found in a dense forest, with no tradition attached. — Ed.]

from his earliest childhood. With this advantage, not possessed by any previous writer, he unites extensive learning and considerable critical sagacity.[1]

The reasons for assigning an ancient date to this drama of Ollantay are conclusive in the judgment of all Quichua scholars. On this point there is a consensus of opinion. But General Mitre, the ex-President of the Argentine Republic, published an essay in 1881, to prove that Ollantay was of Spanish origin and was written in comparatively modern times.[2] The present writer replied to his arguments in the introduction (p. xxix) to the English translation of the second part of *Cieza de Leon* (1883), and this reply was translated into Spanish and published at Buenos Ayres in the same year, by Don Adolfo F. Olivares, accompanied by a critical note from the pen of Dr. Vicente Lopez.[3] The latest publication on the subject of Ollantay consists of a series of articles in the *Ateneo de Lima*, by Don E. Larrabure y Unanue, the accomplished author of a history of the conquest of Peru, not yet published. The general conclusion which has been arrived at by Quichua scholars, after this thorough sifting of the question, is that, although the division into scenes and the stage directions are due to some Spanish hand, and although some few Hispanicisms may have crept into some of the texts, owing to the carelessness or ignorance of transcribers, yet that the drama of Ollantay, in all essential points, is of Inca origin. Several old songs are imbedded in it, and others have been preserved by Quichua scholars at Cuzco and Ayacucho, and in the neighborhood of those cities. The editing of these remains of Inca literature will, at some future time, throw further light on the history of the past. There are several learned Peruvians who devote themselves to Incarial studies, besides Señor Zegarra, who now resides in Spain. Among them may be mentioned Dr. Villar of Cuzco, a ripe scholar, who has recently published a closely reasoned essay on the word *Uira-cocha*, Don Luis Carranza, and Don Martin A. Mujica, a native of Huancavelica.

III. The New Granada Tribes. — The incipient civilization of the Chibchas or Muiscas of New Granada was first made generally known by Humboldt (*Vues des Cordillères*, octavo ed., ii. 220–67; *Views of Nature*, Eng. trans., 425). Cf. also, E. Uricoechea's *Memorias sobre las Antigüedades néo-granadinas* (Berlin, 1854); Bollaert; Rivero and Von Tschudi; Nadaillac, 459; and Joseph Acosta's *Compendio historico del Descubrimiento de la Nueva Granada* (Paris, 1848; with transl. in Bollaert).

[1] *Collection Linguistique Americaine. Tome iv. Ollanaï, drama en vers Quechuas du temps des Incas traduit et commenté, par Gavino Pacheco Zegarra* (Paris, 1878), pp. clxxiv and 265.

[2] *Ollantay. Estudio sobre el drama Quichua, por Bartolomé Mitre, publicada en la Nueva Revista de Buenos Ayres* (1881).

[3] *Poesia Dramatica de los Incas. Ollantay, por Clemente R. Markham traducido del Ingles por Adolfo F. Olivares, y seguido de una carta critica del Dr. Don Vicente Fidel Lopez* (Buenos Ayres, 1883).

CHAPTER V.

THE RED INDIAN OF NORTH AMERICA IN CONTACT WITH THE FRENCH AND ENGLISH.

BY GEORGE E. ELLIS, D.D., LL.D.

President of the Massachusetts Historical Society.

THE relations into which the first Europeans entered with the aborigines in North America were very largely influenced, if not wholly decided, by the relations which they found to exist among the tribes on their arrival here. Those relations were fiercely hostile. The new-comers in every instance and in every crisis found their opportunity and their immunity in the feuds existing among tribes already in conflict with each other. This state of things, while it gave the whites enemies, also furnished them with allies. So far as the whites could learn in their earliest inquiries, internecine strife had been waging here among the natives from an indefinite past.

Starting, then, from this hostile relation between the native tribes of the northerly parts of the continent, we may trace the development of our subject through five periods : —

1. The first period, a very brief one, is marked by the presence of a single European nationality here, the French, for whom, under stringency of circumstance that he might be in friendly alliance with one tribe, Champlain was compelled to espouse its existing feud with other tribes.

2. The next period opens with the appearance and sharp rivalry here of a second European nationality, the English, the hereditary foe of the French, transferring hither their inherited animosities, amid which the Indians were ground as between two mill-stones.

3. Upon the extinction of French dominion on the continent by the English, the former red allies of the French, with secret prompting and help from the dispossessed party, were stirred with fresh animosities against the victors.

4. Yet again the open hostilities of contending Indian tribes were largely turned to account, to their own harm, in their respective alliances with the English colonies or with the mother-country in the War of Independence.

5. The closing period is that which is still in progress as covering the relations with them of the United States government. The old hostilities between those tribes have been steadily of less account in affecting their

later fortunes; and our government has not found it essential or expedient to aggravate its own severity against its Indian subjects, or "wards," by availing itself of the feuds between them.

The same antagonisms which had kept the Indian tribes in hostility with each other prevented their effective alliance among themselves against the whites, and also embarrassed the English and French rivals, who sought to engage them on their respective sides. Many attempts were made by master chiefs among the savages, from the first intrusion of the Europeans, to organize combinations, or what we call "conspiracies," of formerly contending tribes against the common foe. The first of them, formidable though limited in its consequences, was made in Virginia in 1622. Only two of these schemes proved otherwise than wholly abortive. That of King Philip in New England, in 1675, was effective enough to show what havoc such a combination might work. That of Pontiac, in 1763, was vastly more formidable, and was thwarted only by a resistance which engaged at several widely severed points all the warlike resources of the English. But the inherent difficulties, both of combining the Indian tribes among themselves, and of engaging some of them in alliance on either side with the French and the English contestants, were vastly increased by the seeds of sharp dissension sown among them through the rivalries in trade and temptations offered in the fluctuating prices of peltries. Even the long-standing league of the Five Nations was ruptured by the resolute English agent Johnson. He succeeded so far as to secure a promise of neutrality from some of them, and a promise of friendly help from one of them. There were some in each of the tribes falling not one whit behind the sharpest of the whites in skilled sagacity and calculation, who were swift to mark and to interpret the changes in the balance of fortune, as one or the other of the parties of their common enemies made a successful stroke for ascendency.

The facilities for alliance with one or another native tribe against its enemies made for the Europeans a vast difference in the results of their warfare with the aborigines. One might venture positively to assert that the occupancy of this continent by Europeans would have been indefinitely deferred and delayed had all its native tribes, in amity with each other, or willing for the occasion to arrest their feuds, made a bold and united front to resist the first intrusion upon their common domains. Certainly the full truth of this assertion might be illustrated as applicable to many incidents and crises in the first feeble and struggling fortunes of our original colonists in various exposed and inhospitable places. In many cases absolute starvation was averted only by the generous hospitality of the Indians. Taking into view the circumstances under which, from the first, tentative efforts were made for a permanent occupancy by the whites on our whole coast from Nova Scotia to Florida, and along the lakes and great western valleys, we must admit that their fortunes had more of peril than of promise. While, of course, we must refer their success and security

in large measure to the forbearance, tolerance, and real kindliness of the natives, yet it was well proved that as soon as the jealousy of these natives was stirred at any threatened encroachment, only their own feuds disabled them from any united opposition, and gave to one or another tribe the alternative of fighting the white intruders or of an alliance with them against their neighbor enemies. The whole series of the successive encroachments of Europeans on this continent is a continuous illustration of the successful turning to their own account of the strife of Indians against Indians. And when two rival European nationalities opened their two centuries of warfare for dominion on this continent, each party at once availed itself of red allies ready to renew or prolong their own previous hostilities.

The French Huguenots in Florida and the Spaniards who massacred them had each of them allies among the tribes which were in mutual hostility. Champlain was grievously perplexed by the pressure, to which none the less he yielded, that if he would be in amity with the Hurons he must espouse their deadly enmity with the Iroquois. Even the poor remnants of the tribe with which the Pilgrims of Plymouth made their treaty of peace, which lasted for fifty years, were the vanquished and tributary representatives of a broken people. A sharp war and a more deadly plague had made that colony a possibility.

And so it comes to pass that, if we attempt to define at any period during the seventeenth and eighteenth centuries the conflicts between the savages and Europeans on this continent, we have to look for the explanation of any special change in the relations of the Indian tribes to the varying interests and collisions of the different foreign nationalities in rivalry here. The hostilities between the French and the English were chronic and continuous. Frenchman's Bay, at Mt. Desert, preserves the memorial of the first collision, when Argall, from Virginia, broke up the attempted settlement of Saussaye.[1] As to the later developments of the antagonism, resulting in the extinction of French possession here, we are to refer them in about equal measure to two main causes, — the jealousy of the home governments, and the keen rivalry of the respective colonists for the lucrative spoils of the fur trade. The profit of traffic may be regarded as furnishing the prompting for strife on this side of the water, while the passion for territorial conquest engaged the intrigues and the armies of foreign courts in the stakes of wilderness warfare.

In tracing the course of such warfare we must take into our view two very effective agencies, which introduced important modifications in the methods and results of that warfare. In its progress these two agencies became more and more chargeable with very serious consequences. The first of these is the change induced in the warfare of the Indians by their possession of, leading steadily to a dependence upon, the white man's firearms and supplies. The second is the usage, which the Indians soon learned to be profitable, of reserving their white prisoners for ransom, instead of subjecting them to death or torture.

[1] See Vol. IV. p. 141.

When we read of some of the earliest so-called "deeds" by which the English colonists obtained from the sachems wide spaces of territory on the consideration of a few tools, hatchets, kettles, or yards of cloth, we naturally regard the transaction as simply illustrating the white man's rapacity and cunning in tricking the simplicity of the savage. But we may be sure that in many such cases the Indian secured what was to him a full equivalent for that with which he parted. For, as the whites soon learned by experience, the savages supposed that in such transactions they were not alienating the absolute ownership of their lands, but only covenanting for the right of joint occupancy with the English. And then the coveted tools or implements obtained by them represented a value and a use not measurable by any reach of wild territory. A metal kettle, a spear, a knife, a hatchet, transformed the whole life of a savage. A blanket was to him a whole wardrobe. When he came to be the possessor of firearms and ammunition, having before regarded himself the equal of the white man, he at once became his superior. We shall see how the rivalry between the French and the English for traffic with the Indians, the enterprise of traders in pushing into the wilderness with packhorses, the establishment of trucking houses, the facility with which the natives could obtain coveted goods from either party, and the occasional failure of supplies in the contingencies of warfare, were on many occasions the turning-points in the fights in the wilderness, and in the shifting of savage partisanship from one side to the other, as the fickle allies found their own interests at stake.

It was in 1609, when Champlain invaded the Iroquois country, on the lake that bears his name, that the astounded savages first saw the flash and marked the deadly effect of his arquebuse. But the shock soon spent itself. The weapon was found to be a terrestrial one, made and put to service by a man. The Dutch on the Hudson very soon supplied the Mohawks with this effective instrument for prosecuting the fur trade. The French began the general traffic with the Indians near the St. Lawrence, in metal vessels, knives, hatchets, awls, cotton and woollen goods, blankets, and that most coveted of all the white man's stores, the maddening "fire-water." But farther north and west for full two hundred years, from 1670 quite down to our own time, annual cargoes of these commodities were imported through Hudson Bay by the chartered company, and had been distributed by its agents among those who paid for them in peltries, in such abundance that the savages became really dependent upon them, and gradually conformed their habits to the use of them. Of course, in their raids upon English outposts, the spoils of war in the shape of such supplies added rapacity to their ferocity. It was with a proud flourish that Indian warriors, enriched by the plunder on the field of Braddock's disastrous defeat, strutted before the walls of Fort Duquesne, arrayed in the laced hats, sashes, uniform, and gorgets of British officers.

When Céloron was sent, in 1749, by the governor of Canada, to take possession of interior posts along the Alleghanies, he found at each of the

Indian villages, as at Logstown, a chief centre, from a single to a dozen English traders, well supplied with goods for a brisk peltry traffic. He required the chiefs, on the threat of the loss of his favor, to expel them and to forbid their return. But the Indians insisted that they needed the goods. Some of these traders were worthless reprobates, mostly Scotch-Irish, from the frontiers of Pennsylvania. When Christopher Gist was sent, the next year, by the Ohio Land Company, to follow Céloron and to thwart his schemes, he complained strongly of these demoralized and demoralizing traders. In the evidence given before the British House of Commons on the several occasions when the monopoly and the mode of business of the Hudson Bay Company were under question, the extent to which the natives had come to depend upon European supplies was very strongly brought into notice. It was urged that some of the tribes had actually, by disuse, lost their skill in their old weapons. It was even affirmed that in some of the tribes multitudes had died by freezing and starvation, because their recent supplies had failed them. This dependence of the natives upon the resources of civilization, observable from the opening of their intercourse with the whites, has been steadily strengthening for two hundred years, till now it has become an absolute and heavy exaction upon our national treasury.

The custom which soon came in, to soften the atrocities of Indian warfare by the holding of white prisoners for ransom, was grafted upon an earlier usage among the natives of adopting prisoners or captives. There was a formal ceremonial in such cases, and after its performance those who would otherwise have been victims were treated with all kindness. The return of a war-party to its own village was attended with widely different manifestations according to the fortune which had befallen it. If it consisted only of a baffled and flying remnant that had failed in its hazardous enterprise, its coming was announced, and received by the old men, women, and youths in the village with howls and lamentations. If, however, it had been successful, as proved by rich plunder, reeking scalp-locks, and prisoners, some runners were sent in advance to announce its approach. Then began a series of orgies, in which the old squaws were the most demonstrative and hideous. While the scalp-locks were displayed and counted, the well-guarded prisoners were exultingly escorted by their captors, the squaws gathering around them with taunts and petty tormentings. The woful fate which was waiting these prisoners was foreshadowed in prolonged rehearsals for its final horrors. One by one they were forced to run the gauntlet from goal to goal, between lines of yelping fiends, under blows and missiles, stones, sticks, and tomahawks, while efforts were made to trip them in their course, that they might be pounded in their helplessness when maddened with pain. Any exhibition of weakness or dread did but intensify the malignant frenzy of their tormentors. Those who lived through this ordeal, which was intended to be but a preliminary in the barbaric

entertainment, and to stop short of the actual extinction of life, were afterwards, by deliberate preparations made in full view of the prisoners, subjected to all the ingenuities of rage and cruelty which untamed savage fiendishness could devise. The hero who bore the trial without flinching, singing his song of defiance, and in his turn mocking his tormentors because they failed to break his spirit, was most likely to find mercy in a finishing stroke dealt by a magnanimous foe.

Anything like an alleviation of these dread revenges of savage warfare being unallowable, there was open one way of complete relief in the usage of adoption, just referred to. This, however, was never available to the prisoner from his own first motion or prompting. He was wholly passive in the matter. It came solely from the inclination of any one in the village, a warrior or a squaw who, having recently lost a relative, or one whose service was necessary, might select a prisoner from the group as desirable to supply a place that was vacant. There would seem to have been a large liberty allowed in the exercise of this privilege, especially for those who were mourning for a relative lost in the encounter in which the prisoner was taken. Sometimes the merest caprice might prompt the selection. Scarcely, except in the rare case of some proud captive who would haughtily scorn to avail himself of a seeming affinity with the tribe of a hated or abject enemy, would the offered privilege of adoption be refused. For, in any case, an ultimate escape from an enforced durance might be looked to. Of course those who were thus adopted were mostly the young and vigorous. The little children were not especially favored in the process, — except, as soon to be noted, the children of the whites. The ceremonial for adoption was traditional. Beginning generally with somewhat rough and intimidating treatment, the captive was for a while left in suspense as to his fate. When at length the intent of the arbiter of his life was made known to him, the method pursued has been very frequently described to us in detail by the whites who were the subjects of it.[1] The candidate was plunged and thoroughly soused in a stream to rinse out his white blood; the hair of his head, saving the scalp-lock, was plucked out; and after some mouthings and incantations, completing the initiation, all winning blandishments, arts, and appliances were engaged to secure the confidence of the adopted captive, and to draw from him some responsive sign of affection. He was arrayed in the choicer articles of forest finery, and nestled in the family lodge. The father, the squaw, or the patron, in whatever relation, to whom he henceforward belonged, spared no effort to engage and comfort him. Watchful eyes, of course, jealously guarded any restless motions

[1] A most graphic and picturesque account of the ceremonies attending the process of adoption is given in the *Narrative of the Captivity of Col. James Smith*. He was taken prisoner, in May, 1755, by two Delaware Indians, and carried to Fort Duquesne. He describes the methods of the men and the women in an Indian town by which he was adopted as one of the Caughnewagos. He shared the life and rovings of the tribe till 1760, when he got back to his home; accompanied Bouquet as a guide; was colonel of a regiment in our Revolutionary War, and afterwards a member of the Kentucky legislature. Here certainly was a varied career.

looking towards an escape. The final aim was to secure a fully nationalized and acclimated new member of a tribe, ready to share all its fortunes in peace and war.

Naturally there were differences in this whole process and its results, as they concerned these attempted affiliations between the members of Indian tribes and in the adoption of white captives.[1]

In their early conflicts with the whites, the Indians generally practised an indiscriminate slaughter. There were a few exceptions to the rule in King Philip's war.[2] In the raids of the French, with their Indian allies, upon the English settlements, prisoners taken on either side came gradually to have the same status as in civilized warfare, and to be held for exchange. This, however, would proceed upon the supposition that both parties had prisoners. But before there was anything like equality in this matter, the captives were for the most part such as had been seized from among the whites in inroads upon their settlements, not in the open field of warfare. A midnight assault upon some frontier cabins, or upon the lodge of some lonely settler, left the savages to choose between a complete massacre or upon a selection of some of their victims for leading away with them to their own haunts, if not too cumbersome or dangerous for the wilderness journey. It soon came to be understood among the raiding parties of Indians in alliance with the French in Canada that white captives had a ransom value. Contributions were often gathered up in neighborhoods that had been

[1] Governor Colden says that when he first went among the Mohawks he was adopted by them. The name given to him was "Cayenderogue," which was borne by an old sachem, a notable warrior. He writes: "I thought no more of it at that time than as an artifice to draw a belly-full of strong liquor from me for himself and his companions. But when, about ten or twelve years after, my business led me among them," he was recognized by the name, and it served him in good stead. (*Hist. of Five Nats.*, 3d ed., i. p. 11.) The savages always took the liberty of assigning names of their own, either general or individual, to the Europeans with whom they had intercourse. The governor of Canada, for the time being, was called "Onontio"; of New York, "Corlear"; of Virginia, "Assarigoa"; of Pennsylvania, "Onas," etc. At a council of the Six Nations with the governors of Pennsylvania, Virginia, and Maryland, held at Lancaster in June, 1744, it came under notice that the governor of Maryland had as yet no appellation assigned him by the natives. Much formality was used in providing one for him. It was tried by lot as to which of the tribes should have the honor of naming him. The lot fell to the Cayugas, one of whose chiefs, after solemn deliberation, assigned the name "Tocarryhogan." (Colden, ii. p. 89.)

[2] From Archives of Massachusetts, vol. lxviii. p. 193: —

"For the Indian Sagamores, and people that are in warre against us.

"Inteligence is Come to us that you haue some English (especially weomen and children) in Captivity among you. Wee haue therefore sent this messenger, offering to redeeme them either for payment in goods or wompom; or by exchange of prisoners. Wee desire your answer by this our messinger, what price you demand for euery man woman and child, or if you will exchainge for Indians: if you haue any among you that can write your Answer to this our messuage, we desire it in writting, and to that end haue sent paper, pen and Incke by the messenger. If you lett our messenger haue free accesse to you and freedome of a safe returne: Wee are willing to doe the like by any messenger of yours. Prouided he come vnarmed and Carry a white flagg Vpon a Staffe vissible to be seene: which we calle a flagg of truce: and is used by Civil nations in time of warre when any messingers are sent in a way of treaty: which wee haue done by our messenger.

"Boston 31th of March 1676
past by the Council E. R. S. &
was signed

"In testimony whereof I haue set to my hand & Seal. F. L. Gov."

(From *N. E. Hist. and Gen. Register*, Jan'y, 1885, pp. 79, 80.)

raided, and in the meeting-houses of New England on Sundays, for redeeming such captives as were known to be in Canada. And, curiously enough, Judge Sewall in his journal records appeals for charity in the same form for the redemption of captives in the hands of our own savages, and for the ransom of our seamen and traders who were kept in durance by African corsairs.

In the raids of desolation on either side of the Alleghanies and along the sources of the Susquehannah and the Ohio, from the outbreak of the French and Indian war, down to and even after the crushing of Pontiac's conspiracy, while more than a thousand cabins of the borderers were burned and their inmates mostly slaughtered, several hundred captives were borne off by the Indians and distributed among their villages. The ultimate fate of these captives always hung in dread uncertainty. If a panic arose among the lodges in apprehension of an onset from a war-party of the whites, the captives might be massacred. But the force of circumstances and the urgency of interested motives steadily made it an object for their captors to retain their prisoners unharmed, and even to make captivity tolerable to them. The alternative of death or life to them generally depended upon whether they might escape or be released by an avenging party without compensation, or could be held for redemption through a ransom. The knowledge that the Indians retained such captives of course became a very effective motive in inducing their relatives in the settlements to gather parties of neighbors for following the victims into the forest depths. Temporary truces also, when made by victorious parties of the whites, were conditioned upon the surrender of all their surviving countrymen who were supposed to be in duress. The savages practised all their artifices and subterfuges in concealing some of their prisoners, alleging that they had been carried deeper into the country by new masters, or by positively denying all knowledge of their whereabouts. But the persistency and threats of those who had learned how to deal with these red diplomates, with a few resolute strokes generally brought about their surrender. When Bouquet had secured possession of Fort Duquesne with his army of 1,500 men, he stoutly followed up his success beyond the Ohio to the Indian settlements near the Muskingum, and with his sturdy pluck and strong force he overawed the representatives of the neighboring tribes which he had summoned to meet him. He insisted, as the first condition of a truce, upon the delivery of all the white prisoners secluded among them, not only without the payment of any ransom, but upon their being brought in with a protecting escort and with means of sustenance. Of course there was always ignorance or doubt as to the number of captives in any particular place, and as to the hands into which any individual known or supposed to be in durance might have fallen. The word of an Indian on these points was worthless unless backed by other testimony. A stimulating of the tongue into unguarded speech by a dram of rum might in some cases serve the purpose of the rack or the thumb-screw in more civilized cross-examinations. An uncertainty of

course always hung over the survival or the whereabouts of individuals or members of a family whose bodies had not been found on the scene of an Indian frontier raid. Bouquet was accompanied by friends and relatives of supposed survivors held in captivity as the spoils of some massacre, and these might be depended upon to circumvent the falsehoods and cunning of the captors, and to insist upon their giving up their prizes. The persistency and the plain evidence of resolved purpose manifested by Bouquet finally compelled from the representatives of the tribes in council a pledge to surrender all the prisoners in their hands, and messengers were sent out to gather and bring them in, though with some plausible excuses for delay, and the grudging return of only a part of them. But those who were given up became the best witnesses as to the deception practised by the cunning culprits in holding back others. Only after repeated exposures of falsehood by those so grudgingly surrendered, asserting of their own knowledge that there were others held in durance, whom they might even know by name, was there brought about a full deliverance, saving that, whether truly or falsely, in the case of a few individuals demanded the excuse was alleged that they belonged to some chief or tribe absent at a distance on a hunt, and so not to be reached by a summons. Bouquet was also absolute in his demand for all such white captives, young or old, as were alleged to have been adopted or married among the tribes. His firmly insisting upon this, and the compliance with it in many cases, led to some scenic manifestations in the wilderness, of a highly dramatic character, full of the matter of romance in their revelations of the working of human nature under novel and strange conditions. Such manifestations often attended similar scenes in the ransom or forced surrender of whites who had been in captivity among the Indians. But in this special instance of Bouquet's resolute course with the Ohio tribes, numbers, variety, pictur esqueness in those manifestations, gave to the bringing in and the reception of captives features and incidents which strongly engage alike the sympathies and antipathies of human nature. Some of those brought into Bouquet's camp, who had once at least been whites, came with full as much reluctance on their part as that which was felt by those who gave them up. Indeed, several of them could be secured only by being bound and guarded.

Approximation in all degrees to the manners and habits of Indian life and to all the qualities of Indian nature had been realized by Europeans from the first contact of the races on this continent. Of course the instances were numerous and very decisive in which this approximation was completed, and resulted in a substitution of all the ways and habits of savagery for those of civilization. Many of those who were forced back into Bouquet's camp clung to their Indian friends, and repelled all the manifestations of joy and affection of their own nearest kin by blood. They positively refused to return to the settlements. They had been won by preference to the fascinations and license of a life in the wilderness. This preference was by no means inexplicable, even for some full-grown men and

women who had been reared in the white settlements. Life in scattered cabins on the frontiers had more points of resemblance than of difference in hard conditions and privations, when compared with savage life in the woods. Such society as these scattered cabins afforded was rude and rough, all experiences were precarious, daily drudgery was severe, the solitary homes were gloomy, and only exceptional cases of early domestic and mental training alleviated the stern exigencies of the condition of the first generation of the settlers. For women and children especially, the outlook and the routine of life were dismal enough. As for the men, the more they conformed themselves in many respects to the actual habits and resources of the Indians in the training of their instincts, in their garb, their food, their adaptation of themselves to the ways and resources of nature, the easier was their lot. Many women, likewise made captives by the savages, in some cases of mature age, and having looked forward to the usual lot of marriage, found an Indian to be preferable, or at all events tolerable, as a husband. Children who preserved but a faint remembrance of home and parents very readily adopted savage tastes, and testified by their shrieks and struggles their unwillingness to part from their red friends. Specimens from each of these classes were the most marked and demonstrative among the groups brought in to Bouquet from Indian lodges, being in number more than two hundred. Doubtless, however, the majority of them had had enough of the experiences of savage life to make a return to the settlements a welcome release. Such persons thenceforward constituted a useful class as interpreters, mediators, and messengers between the contending parties. Their knowledge of Indian character, superstitions, limitations, weak and strong points, impulsive excitability, stratagems, and adaptability to circumstance proved on many emergent occasions of good account. Such of these returned captives as had had the rudiments of an education, and were trustworthy as narrators, have made valuable contributions to local history.

Among many such intelligent and trustworthy reporters was Col. James Smith, captured on the borders of Pennsylvania in 1755, when eighteen years of age, and kept in captivity five years. Another was John McCullough, taken at about the same time and from the near neighborhood, when eight years old. He was retained eight years, and, being a quick-witted and observing youth, he kept his eyes and ears open to all that he could learn. From such sources we derive the most authentic information we possess of that transition period in the condition and fortunes of many of our aboriginal tribes when the intrusion of Europeans upon them with their tempting goods and their rival schemes, which equally tended to dispossess them of their heritage, introduced among them so many novel complications. Some of the narratives of the whites, who, under the conditions just referred to, lived for years and were assimilated with the Indians, present us occasionally by no means unattractive pictures of the ordinary tenor of life among them. In the brief intervals of peace, and in some favored recesses where

game abounded and the changing seasons brought round festivals, plays, and scenes of jollity, there were even fascinations to delight one of simple tastes, who could enjoy the aspects of nature, share the easy tramp over mossy trails, content himself with the viands of the wilderness, employ the long hours of laziness in easy handiwork, delight in basking beneath the soft hazes of the Indian summer, or listening to the traditional lore of the winter wigwam. The forests very soon began to be the shelter and the roving haunts of a crew of renegades and outlaws from the settlements, who assimilated at all points with the savages, and often used what remained to them of the knowledge and arts of civilization for ingenious purposes of mischief. It has always proved a vastly more easy and rapid process for white men to fall back into barbarism than for an Indian to conform himself to civilization. Wild life brought out all reversionary tendencies, and revived primitive qualities and instincts. It gave those who shared it a full opportunity to become oblivious of all fastidious tastes and of all the squeamishness of over-delicacy. The promiscuous contents of the camp-kettle, with its deposits and incrustations from previous banquets, were partaken of with a zestful appetite. The circumstances of warfare in the woods quickened all the faculties of watchfulness, made even the natural coward brave, imparted endurance, and multiplied all the ingenuities of resource and stratagem. There is something that surpasses the merely marvellous in the feats of sturdy and persevering scouts, escaped captives, remnants of a butchery, messengers sent to carry intelligence in supreme peril, and lonely wayfarers treading the haunted forests, or creeping stealthily through ambushed defiles, penetrating marshes, using the sky and their woodcraft for guidance, fording or swimming choked or icy streams, climbing high tree-tops for a wider survey from the closed woods and thickets, subsisting on roots and berries and moss, and yielding to the exhaustion of nature only when all perils were passed and the refuge was reached. Alike on the march of armies and in the siege of some little forest stronghold surrounded by yelping savages, it was necessary from time to time to send out a single plucky hero to carry or to obtain intelligence. When such a messenger was not designated by the commander, and the extremity of the emergency left the dismal honor to a volunteer, such was never found to be lacking. It confounds all calculations of the law of chances to learn how, even in the majority of such dire enterprises as are on record, fortune favored the brave. Narratives there are which for ages to come will gather all the exciting elements of tragedy and romance, and occasionally even of comedy, as, set down in the language of the woods, without the constraints of art or grammar, they make us for the moment companions of some imperilled man or woman who borrowed of the bear, the deer, the fox, or the beaver, their several instincts and stratagems for outwitting pursuit and clinging to dear life. Rare, it may be, but still well authenticated, are cases of victims with a strong tenacity of vitality, who, left as dead, mutilated and scalped, reasserted themselves when the foe had gone,

found their way back to their homes, and, after such reconstruction as the art of the time would allow, enjoyed a long life afterwards.

The conditions attending the entrance of European war-parties, with their necessary supplies, into the depths of the wilderness were of the most severe and exacting character. They involved equally the outlay of toil and an exposure to perils requiring the most watchful vigilance. Well-worn trails made by the natives, and always sufficiently travelled to keep them open, had long been in use for such purposes as were needed in primitive conditions. These were very narrow, necessitating that progress should be made through them singly, in "Indian file." At portages or carrying-places, burdens were borne on the back from one watercourse to another, round a rapid or across an elevation. Some of these trails are even now traceable in the oldest settled portions of the country, where the woods have never been wholly cleared. Part of that which was availed of by the whites two hundred and fifty years ago between Plymouth and Boston, and others in untilled portions of the Old Colony, are clearly discernible. The thickets and undergrowths came close to the borders of these trails, and the overhanging branches of the trees were found a grievous annoyance when the earliest traders with pack-horses traversed them. In a large part of our present national domain and in Canada, it may safely be said that nineteen twentieths of all movement from place to place was made by the savages by the watercourses of lake and stream, and the same was done by the Europeans till they brought into use horses first, and then carts. These were first put to service by the traders from the English settlements on the frontiers of Pennsylvania and Virginia. The pack-horses, heavily laden, trained to their rough service for rocky and marshy grounds, as well as for the thick and stifling depths of the forest, and able to subsist on very poor forage, carried goods most prized by the natives, and generally in inverse ratio to their real worth. They returned to the settlements from the Indian villages with a burden of precious furs, the traffickers mutually finding their account in their respective shares in barter and profit. These traders with their pack-horses were for a long time the pioneers of the actual settlers. The methods and results of their traffic, trifling as they may seem to be, had the two leading consequences of critical importance: first, they made the Indians acquainted with and dependent upon the white man's goods, and then they provoked and embittered the rival competition between the French and the English for the considerable profits.

What we now call a military road was first undertaken on a serious scale in the advance of the disastrous expedition of General Braddock, in 1755, over the Alleghanies to the forks of the Ohio. The incumbrances with which he burdened himself might wisely have been greatly reduced in kind and in amount. But the exigencies of the service in which he was engaged were but poorly apprehended by him. As in the case of the even more disastrous campaign of General Burgoyne, twenty-two years later, (1777) though his route was mainly by water, the camp was lavishly supplied with

appliances of luxury and sensuality. Braddock's way for his cattle, carts, and artillery was slowly and poorly prepared by pioneers in advance, levelling trees, stiffening marshy places, removing rocks and bushes, and then leaving huge stumps in the devious track to rack the wagons and torment the draught animals. It is not without surprise that we read of the presence of domestic cattle far off in the extreme outposts of single persevering settlers. But when, on the first extensive military expeditions for building a fort on the shore of a lake, at river forks, or to command a portage, we find mention of cannon and heavy ammunition, we marvel at the perseverance involved in their transportation. The casks of liquor, of French brandy and of New England rum, which generally, without stint, formed a part of the stores of each military enterprise, furnished in themselves a motive spirit which facilitated their transport. Flour and bread could, with many risks from stream and weather, be carried in sacks. But pork and beef in pickle, the mainstay in garrisons which could not venture out to hunt or fish, required to be packed in wood. After all the persevering toil engaged in this transportation, the dire necessities of warfare under these stern conditions often compelled the destruction of the stores, every article of which had tasked the strained muscles and sinews of the hard-worked campaigners. When it was found necessary to evacuate a forest post, the stockade was set on fire, the magazine was exploded, the cannon spiked, the powder thrown into the water, and everything that could not be carried off in a hasty retreat was, if possible, rendered useless as booty. As the French and English military movements steadily extended over a wider territory and at more numerous points, with increased forces, the waste and havoc caused by disasters on either side involved an enormous destruction of the materials of war. Vessels constructed with incredible labor on the lakes, anvils, cordage, iron, and artillery having been gathered for their building and arming by perilous ocean voyages and by transit through inner waters and portages, and thousands of bateaux for Lakes Champlain and George, now lie sunken in the depths, most of them destroyed by those in whose service they were to be employed. The "Griffin," the first vessel on Lake Erie, built by La Salle in 1679, disappeared on her second voyage, and lies beneath the waters still. After Braddock's defeat, when the fugitive remnant of his army had reached Dunbar's camp, a hundred and fifty wagons were burned, and fifty thousand pounds of powder were emptied into a creek, after the incredible toil by which they had been drawn over the mountains and morasses.

There were many occasions and many reasons which prompted the Europeans to weigh the gain or loss which resulted to them from the employment of Indian allies, who were always an incalculable element in any enterprise. They could never be depended upon for constancy or persistency. A bold stroke, followed, if successful, with butchery, and a rush to the covert of the woods if a failure, was the sum of their strategy. They had a quick eye in watching the turning fortunes and the probable issue of

a venture, and they acted accordingly. They were wholly disinclined for any protracted siege operations. In the weary months of the investment of Detroit, the only enterprise of the sort engaged in by large bodies of savages acting in concert, we find a single exceptional case of their uniform impatience of such prolonged strategy. And even in that case there were intervals when the imperilled and starving garrison had breathing-spells for recuperation. Charges and counter-charges, pleas and criminations of every kind, plausible, false, or sincere, are found in the journals and reports of English and French officers, prompted by accusations and vindications of either party, called out by the atrocities and butcheries wrought by their savage allies in many of the conflicts of the French and Indian war. In vain did the commanders of the white forces on either side promise that their red allies should be restrained from plunder and barbarity against the defeated party. It was an attempt to bridle a storm. From the written opinions expressed by various civil and military officials during all our Indian wars one might gather a list of judgments, always emphatically worded, as to the qualities of the red men as allies. Governor Dinwiddie, writing in May 28, 1756, to General Abercrombie, on his arrival here to hold the chief command till the coming of Lord Loudon, expresses himself thus: "I think we have secured the Six Nations to the Northward to our Interest who, I suppose, will join your Forces. They are a very awkward, dirty sett of People, yet absolutely necessary to attack the Enemy's Indians in their way of fighting and scowering the Woods before an Army. I am perswaded they will appear a despicable sett of People to his Lordship and you, but they will expect to be taken particular Notice of, and now and then some few Presents. I fear General Braddock despised them too much, which probably was of Disservice to him, and I really think without some of them any engagement in the Woods would prove fatal, and if strongly attached to our Interest they are able in their way to do more than three Times their Number. They are naturally inclined to Drink. It will be a prudent Stepp to restrain them with Moderation, and by some of your Subalterns to shew them Respect."[1] Baron Dieskau, in 1755, had abundant reason for expressing himself about his savage auxiliaries in this fashion: "They drive us crazy from morning to night. One needs the patience of an angel to get on with these devils, and yet one must always force himself to seem pleased with them."[2]

It would seem as if the native tribes, when Europeans first secured a lodgment, were beguiled by a fancy which in most cases was very rudely dispelled. This fancy was that the new-comers might abide here without displacing them. The natives in giving deeds of lands, as has been said, had apparently no idea that they had made an absolute surrender of territory. They seem to have imagined that something like a joint occu-

[1] *Dinwiddie Papers*, ii. p. 426.

[2] Quoted in Parkman's *Montcalm and Wolfe*, i. p. 297.

pancy was possible, each of the parties being at liberty to follow his own ways and interests without molesting the other. So the Indians did not move off to a distance, but frequented their old haunts, hoping to derive advantage from the neighborhood of the white man. King Philip in 1675 discerned and acutely defined the utter impracticability of any such joint occupancy. He indicated the root of the impending ruin to his own race, and he found a justification of the conspiracy which he instigated in pointing to the white man's clearings and fences, and to the impossibility of joining planting with hunting, and domestic cattle with wild game.

The history of the Hudson Bay Company and that of the enterprises conducted by the French for more than a century, when set in contrast with the steady development of colonization by English settlers and by the people of the United States succeeding to them, brings out in full force the different relations into which the aborigines have always been brought by the presence of Europeans among them, either as traders or possessors of territory. The Hudson Bay Company for exactly two centuries, from 1670 to 1870, held a charter for the monopoly of trade with the Indians here over an immense extent of territory, and in the later portion of that period held an especial grant for exclusive trade over an even more extended region, further north and west. The company made only such a very limited occupancy of the country, at small and widely distant posts, as was necessary for its trucking purposes and the exchange of European goods for peltries. During that whole period, allowing for rare casualties, not a single act of hostility occurred between the traders and the natives. A large number of different tribes, often at bitter feud with each other, were all kept in amity with the official residents of the company, and each party probably found as much satisfaction in the two sides of a bargain as is usual in such transactions. Deposits of goods were securely gathered in some post far off in the depths of the wilderness, under the care of two or three young apprentices of the company, and here bands of Indians at the proper season came for barter. Previous to the operations of this company, beginning as early as 1620, large numbers of Frenchmen, singly or in parties, ventured deep into the wilderness in company with savage bands, for purposes of adventure or traffic, and very rarely did any of them meet a mishap or fail to find a welcome. Such adventurers in fact became in most cases Indians in their manner of life. Nor did the jealousy of the savages manifest itself in a way not readily appeased when they found the French priests planting mission stations and truck-houses. In no case did the French intruders ask, as did the English colonists, for deeds of territory. It was understood that they held simply by sufferance, and with a view to mutual advantage for both parties, with no purpose of overreaching. The relations thus established between the French and the natives continued down till even after the extinction of the territorial claims of France. And when, just before the opening of the great French and Indian hostilities with the English colonists, the French had manifested their

purpose to get a foothold on the heritage of the savages by pushing a line of strongly fortified posts along their lakes and rivers, the apprehensions of the savages were craftily relieved by the plea that these securities were designed only to prevent the encroachment of the English.

A peaceful traffic with the Indians, like that of the Hudson Bay Company and the French, had been from the first but a subordinate object of the English colonists. These last, while for a period they confined themselves to the seaboard, supplemented their agricultural enterprise by the fishery and by a very profitable commerce. As soon as they began to penetrate into the interior they took with them their families and herds, made fixed habitations, put up their fences and dammed the streams. Instead of fraternizing with the Indians, they warned them off as nuisances. We must also take into view the fact that this steadily advancing settlement of the Indian country directly provoked and encouraged the resolute though baffled opposition of the savages. They could match forces with these scattered pioneers, even if, as was generally the case, a few families united in constructing a palisadoed and fortified stronghold to which they might gather for refuge. If a body of courageous men had advanced together well prepared for common defence, it is certain the warfare would not have been so desultory as it proved to be. All the wiles of the Indians in conducting their hostilities gave them a great advantage. They thought that the whites might be dislodged effectually from further trespasses if once and again they were visited by sharp penalties for their rash intrusion. It was plain that they were long in coming to a full apprehension of the pluck of their invaders, of their recuperative energies, and of the reserved forces which were behind them. From the irregular base line of the coast the English advanced into the interior, not by direct parallel lines, but rather by successive semicircles of steadily extending radii. The advances from the middle colonies of Pennsylvania and Virginia marked the farthest reaches in this curvature. The French, in the mean while, aimed from the start for occupying the interior.

The period which we have here under review is one through which the savages, for the most part, were but subordinate agents, the principals being the French and the English. So far as the diplomatic faculties of the savages enabled them to hold in view the conditions of the strife, there were doubtless occasions in which they thought they held what among civilized nations is called the balance of power. Nor would it have been strange if, at times, their chiefs had imagined that, though it might be impossible for them again to hold possession of their old domains free from the intrusion of the white man, they might have power to decide which of the two nationalities should be favored above the other. In that case the French doubtless would have been the favored party. We have, however, to take into view the vast disproportion between the numbers, if not of the resources, of these two foreign nationalities, when the struggle between them

earnestly began. In 1688 there were about eleven thousand of the French in America, and nearly twenty times as many English. The French were unified under the control of their home government. Its resources were at their call: its army and navy, its arsenals and treasury, its monarch and ministers, might be supposed to be serviceable and engaged for making its mastery on this continent secure. The English, however, were only nominally, and as regards some of the colonies even reluctantly and but truculently, under the control of their home government. It had been the jealous policy of the New England colonists, from their first planting, to isolate themselves from the mother-country, and to make self-dependence the basis of independence. Their circumstances had thrown them on their own resources, and made them feel that as their foreign superiors could know very little of their emergencies, it was not wise or even right in them to interpose in their affairs. Indeed, it is evident that all the British colonists felt themselves equal, without advice or help from abroad, to take care of themselves, if they had to contend only against the savages. But when the savages had behind them the power of the French monarch, it was of necessity that the English should receive a reinforcement from their own countrymen. In the altercations with the British ministry which followed very soon after the close of the French and Indian war, a keenly argued question came under debate as to the claim which the mother-country had upon the gratitude of her colonists for coming to their rescue when threatened with ruin from their red and white enemies. And the answer to this question was judged to depend upon whether, in sending hither her fleets and armies, Britain had in view an extension of her transatlantic domains or the protection of her imperilled subjects. At any rate, there were jealousies, cross-purposes, and an entire lack of harmony between the direct representatives of English military power and the coöperating measures of the colonial government. Never, under any stress of circumstances, was England willing to raise even the most serviceable of the officers of the provincial forces to the rank of regulars in her own army. The youthful Washington, whose sagacity and prowess had proved themselves in field and council where British officers were so humiliated, had to remain content with the rank of a provincial colonel. Nor did the provincial legislatures act in concert either with each other, or with the advice and appeals of their royal governors in raising men, money or supplies for combined military operations against common enemies. Each of the colonies thought it sufficient to provide for itself. Each was even dilatory and backward when its own special peril was urgent. These embarrassments of the English did very much to compensate the French for their great inferiority in numerical strength. We are again to remind ourselves of the fact that the French, alike from their temperament and their policy, were always vastly more congenial and influential with the savages.

The French in Canada from the first adopted the policy of alliance with

native tribes. Though their warfare with the English was hardly intermittent, there were several occasions when it was specially active. Beginning with the first invasion of the Iroquois territory by Champlain, in 1609, already mentioned, under the plea of espousing the side of his friends and allies, the Hurons and Algonquins, other like enterprises were later pursued. Courcelles, in 1666, made a wild and unsuccessful inroad upon the Iroquois. Tracy made a more effective one in the same year. De la Barre in 1684, Denonville in 1687, and Frontenac in 1693 and 1696, repeated these onsets. The last of these invasions of what is now Central New York was intended to effect the complete exhaustion of the Indian confederacy. Its havoc was indeed well-nigh crushing, but there was a tenacity and a recuperative power in that confederacy of savages which yielded only to a like desolating blow inflicted by Sullivan, under orders from Washington, in our Revolutionary War.

This formidable league of the Five Nations, when first known to Europeans, claimed to have obtained by conquest the whole country from the lakes to the Carolinas, and from the Atlantic to the Mississippi. France, as against other Europeans, though not against the Indians, claimed the same territory. Great Britain claimed the valley of the Ohio and its tributaries, first against the French as being merely the longitudinal extension of the line of sea-coast discovered by English navigators, and then through cessions from and treaties with the Five Nations. The first of these treaties was that made at Lancaster, Pa., in June, 1744. But the Indians afterwards complained that they had been overreached, and had not intended to cede any territory west of the Alleghanies. Here, of course, with three parties in contention, there was basis enough for struggles in which the prize, all considerations of natural justice being excluded, was to be won only by superior power. Neither of the rivals and intruders from across the ocean dealt with the Indians as if even they had any absolute right to territory from which they claimed to have driven off former possessors. So the Indian prerogative was recognized by the French and the English as available only on either side for backing up some rival claim of the one or the other nation; though when the mother-countries were at peace in Europe, their subjects here by no means felt bound even to a show of truce, and they were always most ready to avail themselves of a declaration of war at home to make their wilderness campaigns. It is curious to note that in all the negotiations between the Indians and Europeans, including those of our own government, the only landed right recognized as belonging to the savages was that of giving up territory. The prior right of ownership by the tenure of possession was regarded as invalidated both by the manner in which it had been acquired and by a lack to make a good use of it.

It was in the closing years of the seventeenth century and in those opening the eighteenth that the military and the priestly representatives of France in Canada resolutely advised and undertook the measures which

promised to give them a secure and extended possession of the whole north of the continent, excepting only the strip on the Atlantic seaboard then firmly held by the English colonists. Even this excepted region of territory was by no means, however, regarded as positively irreclaimable, and military enterprises were often planned with the aim of a complete extinction of English possession. The French in their earliest explorations, in penetrating the country to the west and to the south, had been keenly observant in marking the strategic points on lake and river for strongholds which should give them the advantage of single positions and secure a chain of posts for easy and safe communications. Their leading object was to gain an ascendency over the native tribes ; and as they could not expect easily and at once to get the mastery over them all, policy dictated such a skilful turning to account of their feuds among themselves as would secure strong alliances of interest and friendship with the more powerful ones. The French did vastly more than the English to encourage the passions of the savages for war and to train them in military skill and artifice, leaving them for the most part unchecked in the indulgence of their ferocity. It is true that the Dutch and the English had the start in supplying the savages with firearms, under the excuse that they were needed by the natives for the most effective support of the rapidly increasing trade in peltries. But the French were not slow to follow the example, as it presented to them a matter of necessity. And through the long and bloody struggle between the two European nationalities with their red allies, it may be safely affirmed that the frontier warfare of the English colonists was waged against savages armed as well as led on by the French.

Two objects, generally harmonious and mutually helpful of each other, inspired the activity of the French in taking possession successively of posts in the interior of the continent. The first of these was the establishment of mission stations for the conversion of the savages. The other object of these wilderness posts was to secure the lucrative gains of the fur trade from an ever-extending interior. Though, as was just said, these two objects might generally be harmoniously pursued, it was not always found easy or possible to keep them in amity, or to prevent sharp collisions between them. There was a vigorous rivalry in the fur trade between the members of an associated company, with a government monopoly for the traffic, and very keenly enterprising individuals who pursued it, with but little success in concealing their doings, in defiance of the monopolists. The burden of the official correspondence between the authorities in Canada and those at the French court related to the irregularities and abuses of this traffic. Incident to these was a lively plying of the temptations of that other traffic which poured into the wilderness floods of French brandy. The taste of this fiery stimulant once roused in a savage could rarely afterwards be appeased. The English colonists soon gained an advantage in this traffic in their manufacture of cheap rum. It is easy to see how this rivalry between monopolists and individuals in the fur trade, aided by the

stimulant for which the Indian was most craving, would impair the spiritual labors of the priests at their wild stations. Nor were there lacking instances in which the priests themselves were charged with sharing not only the gains of the fur trade, but also those of the brandy traffic, either in the interests of the monopolists or of individuals.

The earliest extended operations of the French fur trade with the Indians were carried on by the northerly route to Lake Huron by the Ottawa River. The French had little to apprehend from English interference by this difficult route with its many portages. But it soon became of vital necessity to the French to take and hold strong points on the line of the Great Lakes. These were on the narrow streams which made the junctions between them. So a fort was to be planted at Niagara, between Ontario and Erie; another at Detroit, between Erie and Huron; another at Michilimackinac, between Michigan and Huron; another at the fall of the waters of Superior into Huron; and Fort St. Joseph, near the head of Lake Michigan, facilitated communication with the Illinois and the Miami tribes; the Ojibwas, Ottawas, Wyandots, and Pottawattomies having their settlements around the westernmost of the lakes, the Sioux being still beyond. South of Lake Erie, in the region afterwards known as the Northwest Territory, between the Alleghanies, the Ohio, and the Mississippi, were the Delawares, the Shawanees, and the Mingoes. It is to be kept in view that this territory, though formally ceded by France to England in the treaty of 1762–63, had previously been claimed by the English colonists as rightfully belonging to their monarch, it being merely the undefined extension of the seacoast held by virtue of the discovery of the Cabots.

The fifth volume of the *Mémoires* published by Margry gives us the original documents, dating 1683–1695, relating to the first project for opening a chain of posts to hold control of, and to facilitate communication between, Canada and the west and south of the continent. The project was soon made to extend its purpose to the Gulf of Mexico. The incursions of the Iroquois and the attempted invasions of the English, with a consequent drawing off of trade from the French, had obliged the Marquis Denonville to abandon some of the posts that had been established. In spite of the opposition of Champigny, Frontenac vigorously urged measures for the repossession and strengthening of these posts. The Jesuits were earnest in pressing the measure upon the governors of Canada. In pushing on the enterprise, the French had sharp experience of the intense hostility of the inner tribes who were to be encountered, and who were to be first conciliated. The French followed a policy quite unlike that of the English in the method of their negotiations for the occupancy of land. The colonists of the latter aimed to secure by treaty and purchase the absolute fee and ownership of a given region. They intended to hold it generally for cultivation, and they expected the Indians then claiming it to vacate it. The French beguiled the Indians by asserting that they had no intention either of purchasing or forcibly occupying, as if it were their own, any spot where

they established a stronghold, a trucking or a mission station. They professed to hold only by sufferance, and that, too, simply for the security and benefit of the natives, in furnishing them with a better religion than their own and with the white man's goods. The Iroquois, finding the hunting and trapping of game for the English so profitable on their own territory, were bent on extending their field. They hoped, by penetrating to Michilimackinac, to make themselves the agents or medium for the trade with the tribes near it, so that they could control the whole southern traffic. So they had declared war against the Illinois, the Miamis, the Ottawas, and the Hurons. It was of vital importance to the French to keep firm hold of Lakes Ontario and Erie, and to guard their connections. The Iroquois were always the threatening obstacle. It was affirmed that they had become so debauched by strong drink that their squaws could not nourish their few children, and that they had availed themselves of an adoption of those taken from their enemies. As they obtained their firearms with comparative cheapness from the English on the Hudson and Mohawk, they used them with vigor against the inner tribes with their primitive weapons, and were soon to find them of service against the English on the frontiers of Virginia. So keenly did the English press their trade as to cause a wavering of the loyalty of those Indian tribes who had been the first and the fast friends of the French. Thus it was but natural that the Iroquois should be acute enough to oppose the building of a French stronghold at any of the selected posts.

In 1699,[1] La Mothe Cadillac proposed to assemble their red allies, then much dispersed, and principally the Ottawas, at Detroit, and there to construct both a fort and a village. At the bottom of this purpose, and of the opposition to it, was a contention between rival parties in the traffic. The favorers and the opponents of the design made their respective representations to the French court. De Callières objected to the plan because of the proximity of the hostile Iroquois, who would prefer to turn all the trade to the English, and his preference was to reëstablish the old posts. The real issue to be faced was whether the Indians now, and ultimately, were to be made subjects of the English or of the French monarch. Cadillac combated the objections of Callières, and succeeded in effecting his design at Detroit. The extension of the traffic was constantly bringing into the field tribes heretofore too remote for free intercourse. In each such case it depended upon various contingencies to decide whether the French or the English would find friends or foes in these new parties, and the alternative would generally rest, temporarily at least, upon which party was most accessible and most profitable for trade. It would hardly be worth the while for an historian, unless dealing with the special theme of the rivalries involved in the fur trade as deciding with which party of the whites one or another tribe came into amity, to attempt to trace the conditions and consequences of such diplomacy in inconstant negotiators.

[1] Margry, v. 135–250.

The English began the series of attempts to bind the Five, afterwards the Six, Nations into amity or neutrality by treaty in 1674. These treaties were wearisome in their formalities, generally unsatisfactory in their terms of assurance, and so subject to caprice and the changes of fortune as to need confirmation and renewal, as suspicion or alleged treachery on either side made them practically worthless. There were two ends to be gained by these treaties of the English with the confederated tribes. The one was to avert hostilities from the English and to secure them privileges of transit for trade. The other object, not always avowed, but implied as a natural consequent of the first, was to alienate the tribes from the French, and if possible to keep them in a state of local or general conflict. Each specification of these treaties was to be emphasized by the exchange of a wampum belt. Then a largess of presents, always including rum, was the final ratification. These goods were of considerable cost to the English, but always seemed a niggard gift to the Indians, as there were so many to share in them.

The first of this series of treaties was that made in 1674, at Albany, by Col. Henry Coursey, in behalf of the colonists of Virginia. It was of little more service than as it initiated the parties into the method of such proceedings.

In the middle of July, 1684, Lord Howard, governor of Virginia, summoned a council of the sachems of the Five Nations to Albany. He was attended by two of his council and by Governor Dongan of New York, and some of the magistrates of Albany. Howard charged upon the savages the butcheries and plunderings which they had committed seven years previous in Virginia and Maryland, "belonging to the great king of England." He told the sachems that the English had intended at once to avenge those outrages, but through the advice of Sir Edmund Andros, then governor-general of the country, had sent peaceful messengers to them. The sachems had proved perfidious to the pledges they then gave, and the governor, after threatening them, demanded from them conditions of future amity. After their usual fashion of shifting responsibility and professions of regret and future fidelity, the sachems renewed their covenants. Under the prompting of Governor Dongan they asked that the Duke of York's arms should be placed on the Mohawk castles, as a protection against their enemies, the French. Doubtless the Indians, in desiring, or perhaps only assenting to, the affixing of these English insignia to their strongholds, might have had in view only the effect of them in warning off the French. They certainly did not realize that their English guests would ever afterwards, as they did, regard this concession of the tribes as an avowal of allegiance to the king of Great Britain, and as adopting for themselves the relation of subjects of a foreign monarch.

The experience gained by many previous attempts to secure the fidelity of the tribes, thenceforward known as the Six Nations by the incorporation into the confederacy of the remnant of the Tuscaroras, was put to service

in three succeeding councils for treaty-making, held respectively at Philadelphia in 1742, in Lancaster, Pa., in 1744,[1] and at Albany in 1746.[2] Much allowance is doubtless to be made in the conduct of the earlier treaties for the lack of competent and faithful interpreters in councils made up of representatives of several tribes, with different languages and idioms. Interpreters have by no means always proved trustworthy, even when qualified for their office.[3] The difficulty was early experienced of putting into our simple mother-tongue the real substance of an Indian harangue, which was embarrassed and expanded by images and flowers of native rhetoric, wrought from the structure of their symbolic language, but adding nothing to the terms or import of the address. It was observed that often an interpreter, anxious only to state the gist of the matter in hand, would render in a single English sentence an elaborately ornate speech of an orator that had extended through many minutes in its utterance. The orator might naturally mistrust whether full justice had been done to his plea or argument. There is by no means a unanimity in the opinions or the judgments of those of equal intelligence, who have reported to us the harangues of Indians in councils, as to the qualities of their eloquence or rhetoric. The entire lack of terms for the expression of abstract ideas compelled them to draw their illustrations from natural objects and relations. Signs and gestures made up a large part of the significance of a discourse. Doubtless the cases were frequent in which the representation of a tribe in a council was made through so few of its members that there might be reasonable grounds for objection on the part of a majority to the terms of any covenant or treaty that had been made by a chief or an orator. Of one very convenient and plausible subterfuge, or honest plea, — whichever in any given case it might have been, — our native tribes have always been skilful in availing themselves. The assumption was that the elder, the graver, wiser representatives of a tribe were those who appeared on its behalf at a council. When circumstances afterwards led the whites to complain of a breach of the conditions agreed on, the blame was always laid by the chiefs on their "young men," whom they had been unable to restrain.

During the long term of intermittent warfare of the French and English on this continent, with native tribes respectively for their foes or allies, the

[1] By the treaty at Lancaster, the Indians covenanted to cede to the English, for goods of the money value of £400, the lands between the Alleghanies and the Ohio. [See our Vol. V. 566. — Ed.]

[2] These treaties are fully presented, with all the harangues, by Colden, vol. ii.

[3] The most capable and intelligent interpreter employed by the English for a long period, and who served at the councils for negotiating the most important treaties of this time, was Conrad Weiser. He came with his family from Germany in 1710, and settled at Schoharie, N. Y. His ability and integrity won him the confidence alike of the Indians and the English. In the *Collections of the Historical Society of Pennsylvania*, vol. i. pp. 1–34, are autobiographical, personal, and narrative papers and journals by this remarkable man, equally characterized by the boldest spirit of adventure and by an ardent piety. He gives in full his journal of his mission from the governments of Pennsylvania and Virginia to negotiate with the Six Nations in 1737. [See Vol. V. 566. — Ed.]

conditions of the conflict, as before hinted, were in general but slightly affected by the alternative of peace or war as existing at any time between their sovereigns and people in Europe. Some of the fiercest episodes of the struggle on this soil took place during the intervals of truce, armistice, and temporary treaty settlements between the leading powers in the old world. When, in the treaties closing a series of campaigns, the settlement in the articles of peace included a restoration of the territory which had been obtained by either party by conquest, no permanent result was really secured. These restitutions were always subject to reclamation. Valuable and strategic points of territory merely changed hands for the time being; Acadia, for example, being seven times tossed as a shuttlecock between the parties to the settlement. The trial had to be renewed and repeated till the decision was of such a sort as to give promise of finality. The prize contended for here was really the mastery of the whole continent, though the largeness of the stake was not appreciated till the closing years of the struggle. Indeed, the breadth and compass of the field were then unknown quantities. Those closing years of stratagem and carnage in our forests correspond to what is known in history as the "Seven Years' War" in Europe, in which France, as a contestant, was worsted in the other quarters of the globe, as in this. Clive broke her power in India, as the generals of Britain discomfited her here. The French, in 1758, held a profitable mercantile settlement on five hundred miles of coast in Africa, between Cape Blanco and the river Gambia. It is one of the curious contrarieties in the workings of the same avowed principles under different conditions, that just at the time that the pacific policy of the Pennsylvania Quakers forbade their offering aid to their countrymen under the bloody work going on upon their frontiers, an eminent English Quaker merchant, Thomas Cumming, framed the successful scheme of conquest over this French settlement in Africa.[1]

The treaty of Aix-la-Chapelle, in 1748, seemed to promise a breathing-time in the strife between the French and English here. In fact, however, so far from there being even a smouldering of the embers on our soil, that date marks the kindling of the conflagration which, continuing to blaze for fifteen years onward, comprehended all the decisive campaigns. The earliest of these were ominous and disheartening to the English, but they closed with the fullness of triumph. We must trace with conciseness the more prominent acts and incidents in which the natives, with the French and English, protracted and closed the strife.

When Europeans entered upon the region now known as Pennsylvania, though its well-watered and fertile territory and its abounding game would seem to have well adapted it to the uses of savage life, it does not appear that it was populously occupied. The Delawares, which had held it at an earlier period, had, previously to the coming of the whites, been subjugated by the more warlike tribes of the Five Nations, or Iroquois. Some of the

[1] Mahon's *England*, ch. 35, and Smollett's *England*, Book iii. ch. 9.

vanquished had passed to the south or west, to be merged in other bands of the natives. Such of them as remained in their old haunts were humiliated by their masters, despised as "women," and denied the privileges of warriors. While the Five Nations were thus potent in the upper portion of Pennsylvania, around the sources of the Susquehanna, its southern region was held by the Shawanees. The first purchase near the upper region made by Europeans of the natives was by a colony of Swedes, under Governor John Printz, in 1643. This colony was subdued, though allowed to remain on its lands, by the Dutch, in 1655. In 1664, the English took possession of all Pennsylvania, and of everything that had been held by the Dutch. Penn founded his province in 1682, by grant from Charles II, and in the next year made his much-lauded treaty of peace and purchase with the Indians for lands west and north of his city. The attractions of the province, and the easy opening of its privileges to others than the Friends, drew to it a rapid and enterprising immigration. In 1729 there came in, principally from the north of Ireland, 6,207 settlers. In 1750 there arrived 4,317 Germans and 1,000 English. The population of the province in 1769 was estimated at 250,000. The Irish settlers were mostly Presbyterians, the Germans largely Moravians. It soon appeared, especially when the ravages of the Indians on the frontiers were most exasperating and disastrous, that there were elements of bitter discord between these secondary parties in the province and the Friends who represented the proprietary right. And this suggests a brief reference to the fact that, as a very effective agent entering into the imbittered conflicts of the time and scene, we are to take into the account some strong religious animosities. The entailed passions and hates of the peoples of the old world, as Catholics and Protestants, and even of sects among the latter, were transferred here to inflame the rage of combatants in wilderness warfare.[1] The zeal and heroic fidelity of the French priests in making a Christian from a baptized and untamed savage had realized, under rude yet easy conditions, a degree of success. In and near the mission stations, groups of the natives had been trained to gather around the cross, and to engage with more or less response in the holy rites. Some of them could repeat, after a fashion, the Pater Noster, the Ave Maria, and the Creed. Some had substituted a crucifix or a consecrated medal for their old pagan charm, to be worn on the breast. When about to go forth on the war-path, their priests would give them shrift and benediction. But, as has been said, it was no part or purpose of this work of christianizing savages to impair their qualities as warriors, to dull their knives or tomahawks, to quench their thirst for blood, or to restrain the fiercest atrocities and barbarities of the fight or the victory. On the well-known experience that fresh converts are always the

[1] Governor Dinwiddie, in urging the assembly of Virginia, in 1756, to active war measures, warned them of the alternative of "giving up your Liberty for Slavery, the purest Religion for the grossest Idolatry and Superstition, the legal and mild Government of a Protestant King for the Arbitrary Exactions and heavy Oppressions of a Popish Tyrant." (*Dinwiddie Papers*, ii. p. 515.)

most ardent haters of heresy, these savage neophytes were initiated into some of the mysteries of the doctrinal strife between the creed of their priests and the abominated infidelity and impiety of the English Protestants. Some of the savages were by no means slow to learn the lesson. Mr. Parkman's brilliant and graphic pages afford us abounding illustrations of the part which priestly instructions and influence had in adding to savage ferocity the simulation of religious hate for heresy. With whatever degree of understanding or appreciation of the duty as it quickened the courage or the ferocity of the savage, there were many scenes and occasions in which the warrior added the charge of heretic to that of enemy, when he dealt his blow.[1]

Almost as violent and exasperating were the animosities engendered between the disciples of different Protestant fellowships. The Quakers, backed by proprietary rights, by the prestige of an original peace policy and friendly negotiations with the Indians, and for the most part secure and unharmed in the centralized homes of Philadelphia and its neighborhood, imagined that they might refuse all participation in the bloody work enacting on their frontiers. The adventurous settlers on the borders were largely Presbyterians. The course of non-interference by the Quakers, who controlled the legislature, seemed to those who were bearing the brunt of savage warfare monstrously selfish and inhuman. There was a fatuity in this course which had to be abandoned. When a mob of survivors from the ravaged fields and cabins of the frontiers, bringing in cartloads of the bones gathered from the ashes of their burned dwellings, thus enforced their remonstrances against the peace policy of the legislature, the Quakers were compelled to yield, and to furnish the supplies of war.[2] But sectarian hatred hardly ever reached an intenser glow than that exhibited between the Pennsylvania Quakers and Presbyterians. Meanwhile, the mild and kindly missionary efforts of the Moravians, in the same neighborhood, were cruelly baffled. Their aim was exactly the opposite of that which guided the Jesuit priests. They sought first to make their converts human beings, planters of the soil, taught in various handicrafts, and weaned from the taste of war and blood.

When the frontier war was at its wildest pitch of havoc and fury, the Moravian settlements, which had reached a stage giving such promise of success as to satisfy the gentle and earnest spirit of the missionaries who had planted them, were made to bear the brunt of the rage of all the parties engaged in the deadly turmoil. The natives timidly nestling in their

[1] In Mr. Parkman's *Montcalm and Wolfe*, i. p. 65 and on, is a lively account of the busy zeal of Father Piquet in making and putting to service savage converts of the sort described in the text. [See Vol. V. 571. — Ed.]

[2] The excellent James Logan, who came over as secretary to William Penn, and who always claimed to be a consistent member of the Society of Friends, took an exception to a position on one point, — that of maintaining the right, and even obligation, of defensive warfare. A letter of very cogent argument to this effect was addressed by him to the Society of Friends in 1741, remonstrating with them for their opposition in the legislature to means for defending the colony. *Collections of Histor'l. Soc. of Penns.*, i. p. 36. [See Vol. V. p. 243. — Ed.]

settlements were regarded as an emasculated flock of nurslings, mean and cowardly, lacking equally the manhood of the savage and the pride and capacity of the civilized man. Worse than this, their pretended desire to preserve a neutrality and to have no part in the broil was made the ground of a suspicion, at once acted upon as if fully warranted, that they were really spies, offering secret information and even covert help as guides and prompters in the work of desolation among the scattered cabins of the whites. So a maddened spirit of distrust, inflamed by false rumors and direct charges of complicity, brought upon the Moravian settlers the hate and fury of the leading parties in the conflict.[1]

It is noteworthy that the most furious havoc of savage warfare should have been wreaked on the frontiers of Pennsylvania, the one of all the English colonies in America whose boast was, and is, that there alone the entrance of civilized men upon the domains of barbarism was marked and initiated by the Christian policy of peace and righteousness. Penn and his representatives claimed that they had twice paid the purchase price of the lands covered by the proprietary charter to the Indian occupants of them, — once to the Delawares residing upon them, and again to the Iroquois who held them by conquest. The famous "Walking Purchase," whether a fair or a fraudulent transaction, was intended to follow the original policy of the founder of the province.[2]

In the inroads made upon the English settlements by Frontenac and his red allies, New York and New England furnished the victims. The middle colonies, so far as then undertaken, escaped the fray. Trouble began for them in 1716, when the French acted upon their resolve to occupy the valley of the Ohio. The Ohio Land Company was formed in 1748 to advance settlements beyond the Alleghanies, and surveys were made as far as Louisville. This enterprise roused anew the Indians and the French. The latter redoubled their zeal in 1753 and onward, south of Lake Erie and on the branches of the Ohio. The English found that their delay and dilatoriness in measures for fortifying the frontiers had given the French an advantage which was to be recovered only with increased cost and enterprise. In an earlier movement, had the English engaged their efforts when it was first proposed to them, they might have lessened, at least, their subsequent discomfiture. Governor Spotswood, of Virginia, in 1720 had urged on the British government the erection of a chain of posts beyond the Alleghanies, from the lakes to the Mississippi. But his urgency had been ineffectual. The governor reported that there were then "Seven Tributary Tribes" in Virginia, being seven hundred in number, with two

[1] It was but a repetition of the passions and jealousies of the colonists of Massachusetts, as maddened by the devastation inflicted upon them in King Philip's war, when they themselves broke up the settlements, then under hopeful promise, of "Praying Indians," at Natick and other villages, the fruits of the devoted labors of the Apostle Eliot. The occasion of this dispersion and severe watch over the Indian converts was a jealousy that they had been warmed in the bosom of a weak pity merely for a deadly use of their fangs.

[2] [See Vol. V. 240. — ED.]

hundred and fifty fighting-men, all of whom were peaceful. His only trouble was from the Tuscaroras on the borders of Carolina.[1]

The erection of Fort Duquesne may be regarded as opening the decisive struggle between the French and the English in America, which reached its height in 1755, and centred around the imperfect chain of stockades and blockhouses on the line of the frontiers then reached by the English pioneers.

About the middle of the eighteenth century the number of French subjects in America, including Acadia, Canada, and Louisiana, was estimated at about eighty thousand. The subjects of England were estimated at about twelve hundred thousand. But, as before remarked, this vast disparity of numbers by no means represented an equal difference in the effectiveness of the two nationalities in the conduct of military movements. The French were centralized in command. They had unity of purpose and in action. In most cases they held actual defensive positions at points which the English had to reach by difficult approaches; and more than all, till it became evident that France was to lose the game, the French received much the larger share of aid from the Indians. Pennsylvania and Virginia were embarrassed in any attempt for united defensive operations on the frontiers by their own rival claims to the Ohio Valley. The English, however, welcomed the first signs of vacillation in the savages. When Céloron, in 1749, had sent messengers to the Indians beyond the Alleghanies to prepare for the measures he was about to take to secure a firm foothold there, he reported that the natives were "devoted entirely to the English." This might have seemed true of the Delawares and Shawanees, though soon afterwards these were found to be in the interest of the French. In fact, all the tribes, except the Five Nations, may be regarded as more or less available for French service up to the final extinction of their power on the continent. Indeed, as we shall see, the mischievous enmity of the natives against the English was never more vengeful than when it was goaded on by secret French agency after France had by treaty yielded her claims on this soil. Nor could even the presumed neutrality of the Five Nations be relied upon by the English, as there were reasons for believing that many among them acted as spies and conveyed intelligence. Till after the year 1754 so effective had been the activity of the French in planting their strongholds and winning over the savages that there was not a single English post west of the Alleghanies.

At the same critical stage of this European rivalry in military operations, the greed for the profits of the fur trade was at its highest pitch. The beavers, as well as the red men, should be regarded as essential parties to the struggle between the French and the English. The latter had cut very deep into the trade which had formerly accrued wholly to the French at Oswego, Toronto, and Niagara.

[1] *Spotswood Papers*, published by the Virginia Historical Society. [The events of this period are followed in our Vol. V. — Ed.]

Up to the year 1720 there had come to be established a mercantile usage which had proved to be very prejudicial to the English, alike in their Indian trade and in their influence over the Indians. The French had been allowed to import goods into New York to be used for their Indian trade. Of course this proved a very profitable business, as it facilitated their operations and was constantly extending over a wider reach their friendly relations with the farther tribes. Trade with Europe and the West Indies and Canada could be maintained only by single voyages in a year, through the perilous navigation of the St. Lawrence. With the English ports on the Atlantic, voyages could be made twice or thrice a year. A few merchants in New York, having a monopoly of supplying goods to the French in Canada, with their principals in England, had found their business very profitable. Goods of prime value, especially "strouds," a kind of coarse woollen cloth highly prized by the Indians, were made in and exported from England much more cheaply than from France. The mischief of this method of trade being realized, an act was passed by the Assembly in New York, in 1720, which prohibited the selling of Indian goods to the French under severe penalties, in order to the encouragement of trade in general, and to the extension of the influence of the English over the Indians to counterbalance that of the French. Some merchants in London, just referred to, petitioned the king against the ratification of this act. By order in council the king referred the petition to the Lords of Trade and Plantations. A hearing, with testimonies, followed, in which those interested in the monopoly made many statements, ignorant or false, as to the geography of the country, and the method and effects of the advantage put into the hands of the French. But the remonstrants failed to prevent the restricting measure. From that time New York vastly extended its trade and intercourse with the tribes near and distant, greatly to the injury of the French.[1]

The first white man's dwelling in Ohio was that of the Moravian missionary, Christian Frederic Post.[2] He was a sagacious and able man, and had acquired great influence over the Indians, which he used in conciliatory ways, winning their respect and confidence by the boldness with which he ventured to trust himself in their villages and lodges, as if he were under some magical protection. He went on his first journey to the Ohio in 1758, by request of the government of Pennsylvania, on a mission to the Delawares, Shawanees, and Mingoes. These had once been friendly to the English, but having been won over by the French, the object was to regain their confidence. The tribes had at this time come to understand, in a thoroughly practical way, that they were restricted to certain limited conditions so far as they were parties to the fierce rivalry between the Euro-

[1] The official papers are given in full by Colden, who adds a very able memorial of his own, in favor of the act, addressed to Governor Burnet, in 1724. It was estimated that the Indian trade of New York increased fivefold in twelve years.

[2] [See Vol. V. 530, 575. — Ed.]

peans. The issue was no longer an open one as to their being able to reclaim their territory for their own uses by driving off all these pale-faced trespassers. It was for them merely to choose whether they would henceforward have the French or the English for neighbors, and, if it must be so, for masters. Nor were they left with freedom or power to make a deliberate choice. But Post certainly stretched a point when he told the Indians that the English did not wish to occupy their lands, but only to drive off the French.

As Governor Spotswood, in the interest of Virginia, had attempted, in 1716, to break the French line of occupation by promoting settlements in the west, Governor Keith, of Pennsylvania, followed with a similar effort in 1719. Both efforts could be only temporarily withstood, and if baffled at one point were renewed at another. The English always showed a tenacity in clinging to an advance once made, and were inclined to change it only for a further advance. Though Fort Duquesne was blown up when abandoned by the French, with the hope of rendering it useless to the English, the post was too commanding a one to be neglected. After it had been taken by General Forbes in November, 1758, and had been strongly reconstructed by General Stanwix, though it was then two hundred miles distant from the nearest settlement, the possession of it was to a great extent the deciding fact of the advancing struggle. Colonel Armstrong had taken the Indian town of Kittanning in 1756.

The treaty negotiations between English and French diplomates at a foreign court, in 1763, which covenanted for the surrender of all territory east of the Mississippi and of all the fortified posts on lake and river to Great Britain, was but a contract on paper, which was very long in finding its full ratification among the parties alone interested in the result here. There were still three of these parties: the Indians; the French, who were in possession of the strongholds in the north and west; and the English colonists, supported by what was left of the British military forces, skeleton regiments and invalided soldiers, who were to avail themselves of their acquired domain. During the bloody and direful war which had thus been closed, the Indians had come to regard themselves as holding the balance of power between the French and the English. Often did the abler savage warriors express alike their wonder and their rage that those foreign intruders should choose these wild regions for the trial of their fighting powers. "Why do you not settle your fierce quarrels in your own land, or at least upon the sea, instead of involving us and our forests in your rivalry?" was the question to the officers and the file of the European forces. Though the natives soon came to realize that they would be the losers, whichever of the two foreign parties should prevail, their preferences were doubtless on the side of the French; and by force of circumstances easily explicable, after the English power, imperial and provincial, had obtained the mastery of the territory, the sympathies and aid of the natives went with the British during the rebellion of the colonies. But

before this result was reached England won its ascendency at a heavy sacrifice of men and money, in a series of campaigns under many different generals. The general peace between England, France, and Spain, secured by the treaty of 1763, and involving the cession of all American territory east of the Mississippi by France to Britain, was naturally expected to bring a close to savage warfare against the colonists. The result was quite the contrary, inasmuch as the sharpest and most desolating havoc was wrought by that foe after the English were nominally left alone to meet the encounter. The explanation of this fact was that the French, though by covenant withdrawn from the field, were, hardly even with a pretence of secrecy, perpetuating and even extending their influence over their former wild allies in embarrassing and thwarting all the schemes of the English for turning their conquests to account. General Amherst was left in command here with only enfeebled fragments of regiments and with slender ranks of provincials. The military duty of the hour was for the conquerors to take formal possession of all the outposts still held by French garrisons, announcing to those in command the absolute conditions of the treaty, and to substitute the English for the French colors, henceforward to wave over them. This humiliating necessity was in itself grievous enough, as it forced upon the commanders of posts which had not then been reached by the war in Canada, a condition against which no remonstrance would avail. But beyond that, it furnished the occasion for the most formidable savage conspiracy ever formed on this continent, looking to the complete extinction of the English settlements here. The French in those extreme western posts had been most successful in securing the attachment of the neighboring Indian tribes, and found strong sympathizers among them in their discomfiture. At the same time those tribes had the most bitter hostility towards the English with whom they had come in contact. They complained that the English treated them with contempt and haughtiness, being niggard of their presents and sharp in their trade. They regarded each advanced English settlement on their lands, if only that of a solitary trader, as the germ of a permanent colony. Under these circumstances, the French still holding the posts, waiting only the exasperating summons to yield them up, found the temptation strong and easy of indulgence to inflame their recent allies, and now their sympathizing friends, among the tribes, with an imbittered rage against their new masters. Artifice and deception were availed of to reinforce the passions of savage breasts. The French sought to relieve the astounded consternation of their red friends on finding that they were compelled to yield the field to the subjects of the English monarch, by beguiling them with the fancy that the concession was but a temporary one, very soon to be set aside by a new turn in the wheel of fortune. Their French father had only fallen asleep while his English enemies had been impudently trespassing upon the lands of his red children. He would soon rouse himself to avenge the insult, and would reclaim what he had thus lost. Indeed, on the

principle that the size and ornamentings of a lie involved no additional wrong in the telling it, the Indians were informed that a French army was even then preparing to ascend the Mississippi with full force, before which the English would be crushed.

There was then in the tribe of Ottawas, settled near Detroit, a master spirit, who, as a man and as a chief, was the most sagacious, eloquent, bold, and every way gifted of his race that has ever risen before the white man on this continent to contest in the hopeless struggle of barbarism with civilization. That Pontiac was crafty, unscrupulous, relentless, finding a revel in havoc and carnage, might disqualify him for the noblest epithets which the white man bestows on the virtues of a military hero. But he had the virtues of a savage, all of them, and in their highest range of nature and of faculty. He was a stern philosopher and moralist also, of the type engendered by free forest life, unsophisticated and trained in the school of the wilderness. He knew well the attractions of civilization. He weighed and compared them, as they presented themselves before his eyes in full contrast with savagery, in the European and in the Indian, and in those dubious specimens of humanity in which the line of distinction was blurred by the Indianized white man, the "Christian" convert, and the half-breed. Deliberately and, we may say, intelligently, he preferred for his own people the state of savagery. Intelligently, because he gave grounds for his preference, which, from his point of view and experience, had weight in themselves, and cannot be denied something more than plausibility even in the judgment of civilized men, for idealists like Rousseau and the Abbé Raynal have pleaded for them. Pontiac was older in native sagacity and shrewdness than in years. He had evidence enough that his race had suffered only harm from intercourse with the whites. The manners and temptations of civilization had affected them only by demoralizing influences. All the elements of life in the white man struck at what was noblest in the nature of the Indian, — his virility, his self-respect, his proud and sufficing independence, his content with his former surroundings and range of life. With an earnest eloquence Pontiac, in the lodges and at the council fires of his people, whether of his own immediate tribe or of representative warriors of other tribes, set before them the demonstration that security and happiness, if not peace, depended for them on their renouncing all reliance upon the white man's ways and goods, and reverting with a stern stoicism to the former conditions of their lot. He told his responsive listeners that the Great Spirit, in pouring the wide salt waters between the two races of his children, meant to divide them and to keep them forever apart, giving to each of them a country which was their own, where they were free to live after their own method. The different tinting of their skin indicated a variance which testified to a rooted divergence of nature. For his red children the Great Spirit had provided the forest, the meadow, the lake, and the river, with fish and game for food and clothing. The canoe, the moccasin, the snow-shoe, the stone axe, the

hide or bark covered lodge, the fields of golden maize, the root crops, the vines and berries, the waters of the cold crystal spring, made the inventory of their possessions. They belonged to nature, and were of kin to all its other creatures, which they put freely to their use, holding everything in common. The changing moons brought round the seasons for planting and hunting, for game, festivity, and religious rite. Their old men preserved the sacred traditions of their race. Their braves wore the scars and trophies of a noble manhood, and their young men were in training to be the warriors of their tribes in defence or conquest.

These, argued Pontiac, were the heritage which the Great Spirit had assigned to his red children. The spoiler had come among them from across the salt sea, and woe and ruin for the Indian had come with him. The white man could scorn the children of the forest, but could not be their friend or helper. Let the Indian be content and proud to remain an Indian. Let him at once renounce all use of the white man's goods and implements and his fire-water, and fall back upon the independence of nature, fed on the flesh and clothed with the skins secured by bow and arrow and his skill of woodcraft.

Such was the pleading of the most gifted chieftain and the wisest patriot, the native product of the American wilderness. There was a nobleness in him, even a grandeur and prescience of soul, which take a place now on the list of protests that have poured from human breasts against the decrees of fate. Pontiac followed up his bold scheme by all the arts and appliances of forest diplomacy. He formed his cabinet, and sent out his ambassadors with their credentials in the reddened hatchet and the war-belt. They visited some of even the remoter tribes, with appeals conciliatory of all minor feuds and quarrels. Their success was qualified only by the inveteracy of existing enmities among some of these tribes. It would be difficult to estimate, even if only approximately, the number of the savages who were more or less directly engaged in the conspiracy of Pontiac. A noted French trader, who had resided many years among the Indians, and who had had an extended intercourse with the tribes, stayed at Detroit during the siege, having taken the oath of allegiance to the king of Great Britain. Largely from his own personal knowledge, he drew up an elaborate list of the tribes, with the number of warriors in each. The summing up of these is 56,500. In the usual way of allowing one to five of a whole population for able-bodied men, this would represent the number of the savages as about 283,000, which slightly exceeds the number of Indians now in our national domain.[1]

The lake and river posts which had been yielded up by the French, on the summons, were occupied by slender and poorly supplied English garrisons, unwarned of the impending concentration. The scheme of Pontiac involved two leading acts in the drama: one was the beleaguerment of all

[1] Appendix V to the *Ohio Valley Historical Series*, edition of *Bouquet's Expedition* (Cincinnati, 1868).

the fortified lake and river garrisons; the other was an extermination by fire and carnage of all the isolated frontier settlements at harvest time, so as to cause general starvation. The plan was that all these assaults, respectively assigned to bodies of the allies, should be made at the same time, fixed by a phase of the moon. Scattered through the wilderness were many English traders, in their cabins and with their packhorses and goods. These were plundered and massacred.[1] The assailed posts were slightly reinforced by the few surviving settlers and traders who escaped the open field slaughter. The conspiracy was so far effective as to paralyze with dismay the occupants of the whole region which it threatened. But pluck and endurance proved equal to the appalling conflict. Nearly all the posts, after various alternations of experience, succumbed to the savage foe. Such was the fate of Venango, Le Bœuf, Presqu' Isle, La Bay, St. Joseph, Miamis, Ouachtanon, Sandusky, and Michílimackinac. Detroit alone held out. The fort at Niagara, being very strong, was not attacked. The Shawanees and Delawares were active agents in this conspiracy. The English used all their efforts and appliances to keep the Six Nations neutral. The French near the Mississippi were active in plying and helping the tribes within their reach. The last French flag that came down on our territory was at Fort Chartres on the Mississippi.[2]

[1] It is estimated that not less than two hundred of these scattered traders, who had confidently ventured into the wilderness on the assurance of the treaty, were massacred, after being plundered of goods of more than a hundred thousand pounds in value.

[2] [The events of the Pontiac war can be followed in Vol. V. — Ed.]

CRITICAL ESSAY ON THE SOURCES OF INFORMATION.[1]

By Dr. Ellis and the Editor.

ON some few historical subjects we have volumes so felicitously constructed as to combine all that is most desirable in original materials with a judicious digest of them. Of such a character is Francis Parkman's *France and England in North America, A Series of Historical Narratives*. So abundant, authentic, and intelligently gathered are his citations from and references to the journals, letters, official reports, and documents, often in the very words of the actors, that, through the writer's luminous pages, we are, for all substantial purposes, made to read and listen to their own narrations. Indeed, we are even more favored than that. So comprehensive have been his researches, and so full and many-sided are the materials which he has digested for us, that we have all the benefit of an attendance on a trial in a court or a debate in the forum, where by testimony and cross-examination different witnesses are made to verify or rectify their separate assertions. The official representatives of France, military and civil, on this continent, like their superiors and patrons at home, were by no means all of one mind. They had their conflicting interests to serve. They made their reports to those to whom they were responsible or sought to influence, and so colored them by their selfishness or rivalry. These communications, gathered from widely scattered repositories, are for the first time

[1] The bibliography of the subject is nowhere exhaustively done. The *Proof-sheets* of Pilling as a tentative effort, and his later divisionary sections, devoted to the Eskimo, Siouan, and other stocks, though primarily framed for their linguistic bearing, are the chief help; and these guides can be supplemented by Field's Indian *Bibliography*, the references for anonymous books in Sabin's *Dictionary* (ix. p. 86), and sections in many catalogues of public and private libraries, like the Brinley (iii. 5,352 etc.), devoted wholly or in part to Americana, and the foot-notes and authorities given in Parkman, H. H. Bancroft, and many others.

brought together and made to confront each other in Mr. Parkman's pages. Allowing for a gap covering the first half of the eighteenth century, which is yet to be filled, Mr. Parkman's series of volumes deals with the whole period of the enterprise of France in the new world to its cession of all territory east of the Mississippi to Great Britain. His marvellously faithful and skilful reproduction of the scenic features of the continent, in its wild state, bears a fit relation to his elaborate study of its red denizens. His wide and arduous exploration in the tracks of the first pioneers, and his easy social relations with the modern representatives of the aboriginal stock, put him back into the scenes and companionship of those whose schemes and achievements he was to trace historically. After identifying localities and lines of exploration here, he followed up in foreign archives the missives written in these forests, and the official and confidential communications of the military and civic functionaries of France, revealing the joint or conflicting schemes and jealousies of intrigue or selfishness of priests, traders, monopolists, and adventurers. The panorama that is unrolled and spread before us is full and complete, lacking nothing of reality in nature or humanity, in color, variety, or action. The volumes rehearse in a continuous narrative the course of French enterprise here, the motives, immediate and ultimate, which were had in view, the progress in realizing them, the obstacles and resistance encountered, and the tragic failure.[1]

The references in Parkman show that he depends more upon French than upon English sources, and indeed he seems to give the chief credit for his drawing of the early Indian life and character to the *Relations* of the French and Italian Jesuits,[2] during their missionary work in New France.

We must class with these records of the Jesuits, though not equalling them in value, the volumes of Champlain, Sagard, Creuxius, Boucher,[3] and the later Lafitau and Charlevoix. Parkman[4] tells us that no other of these early books is so satisfactory as Lafitau's *Mœurs des Sauvages* (1724); and Charlevoix gave similar testimony regarding his predecessor.[5] For original material on the French side we have nothing to surpass in interest the *Mémoires et documents*, published by Pierre Margry, of which an account has been given elsewhere,[6] as well as of the efforts of Parkman and others in advancing their publication.[7] There is but little matter in these volumes relating to the military operations which make the subject of this chapter, though jealousy and rivalry of the schemes of the English, and the necessity of efforts to thwart them in their attempts to gain influence and to open trade with the Indians, are constantly recognized. In the diplomatic and military movements which opened on this continent the Seven Years' War, the English, who had substantially secured the alliance of the Iroquois, or the Six Nations, insisted that they had obtained by treaties with them the territory between the Alleghanies and the Ohio, which the Six Nations on their part claimed to have gained by conquest and cession of the tribes that had previously occupied it. But when the English vindicated their entrance on the territory on the basis of these treaties with the Six Nations, the Shawanees and the Delawares, having recuperated their courage and vigor, denied this right by conquest. The French could not claim a right either by conquest or by cession. Their assumed occupancy and tenure through mission stations and strongholds were maintained simply and wholly on grounds of discovery and exploration. Margry's volumes furnish the abundant and all-sufficient evidence of the priority of the French in this enterprise. The official documents interchanged with the authorities at home are all engaged with advice and promptings and measures for making good the claim to dominion founded on discovery. These volumes also

1 Parkman's merits as a historian are elsewhere recognized in the present history. See Vols. II., IV., and V. He first gave his summary of Indian character in the introductory chapter of his first historical book, his *Pontiac*. He later completed it in papers in the *North Amer. Rev.*, July, 1865, and July, 1866, and finally in the introduction to his *Jesuits*.

2 This class of material, including the *Lettres Edifiantes*, has been examined in our Vol. IV. 292, 296, 316, etc. Cf. Shea's *Charlevoix*, i. 88; *Glorias del segundo siglo de la compañia de Jesus, 1646–1730* (Madrid, 1734).

Parkman calls Brébœuf the best observer among the Jesuits. On their missions see *Revue Canadienne*, Jan., 1888; *Dublin Review*, xii. (1869) 70; *Mag. Amer. Hist.*, iii. 250. Margry (vol. i.) has a "Mémoire" on the Recollects, 1614–1884. Cf. *Revue Canadienne*, by S. Lesage, Feb., 1867, p. 303. On the earlier Canadian missions see N. E. Dionne in *Nouvelles Soirées Canadiennes*, i. 399; *U. S. Catholic Monthly*, vii. 235, 518, 561; and the Abbé Verreau on the beginnings of the Church in Canada, in *Roy. Soc. Canada, Proc.*, ii. 63.

3 See Vol. IV. 130, 290, 296, 298.

4 *Jesuits*, p. liv.

5 Shea's ed. Charlevoix, p. 91. See *post*, Vol. IV. 298.

6 Cf. Vol. IV. p. 242.

7 *U. S. Statutes at Large*, xvii. 513.

are of the highest value as presenting to us from the first explorers, every way intelligent and competent as observers and reporters, the scenes and tenants of the interior of the continent. Here we have the wilderness, its primeval forests, its sea-like lakes, its threading rivers, shrunken or swollen, its cataracts and its confluent streams, its marshy expanses, bluffs, and plains, and its resources, abundant or scant, for sustaining life of beasts or men, all touched in feature or full portrayal by the charming skill of those to whom the sight was novel and bewildering.[1] These French explorers will henceforth serve for all time as primary authorities on the features and resources of the interior of this continent just before it became the prize in contest between rival European nationalities. That contest undoubtedly had more to do in deciding the fate of the savage tribes from that time to our own. There are many reasons for believing that if the French had been able to hold alone an undisputed dominion in the interior of the continent, their relations with the Indian tribes, if not wholly pacific, would have been far more amicable than those which followed upon the hot rivalry with the English for the possession of their territories. The French were the wiser, the more tolerant and friendly of the two, in their intercourse with and treatment of the savages, with whom they found it so easy to affiliate. Under other circumstances the Indians might have come to hold the relation of *wards* to the French in a sense far more applicable than that in which the term has been used by the government of the United States.

Of the early English material there is no dearth, but it hardly has the same stamp of authority. The story of the Moravian and other missions on the Protestant and English side has less of such invariable devotedness and success than is recorded in the general summaries of the Jesuit and Recollet missions, like Shea's *History of the Catholic Missions*, 1529–1854 (N. Y., 1855).[2] The *Indian Nations* of Heckewelder,[3] the service of the United Brethren, and the labors instituted by the Society for the Propagation of the Gospel,[4] are records not without significance; but they yield to the superior efficacy of the French.[5] Among the English administrative officers, the lead must doubtless be given to Sir William Johnson, for his personal influence over the Indian mind, winning their full confidence by fair and generous treatment of them, by a free hospitality, by assimilating with their habits even in his array, and by mastering their language. His deputy, Col. George Croghan, as interpreter and messenger, was kept busily employed in constant tramps through the woods, and in fearless errands to parties of vacillating or hostile tribes, to hold or win them to the English interest. The principal and the deputy, in this hazardous diplomacy, were specially qualified for their office by having mastered the gift and qualities of Indian oratory, by a familiarity with Indian character in its strength and weakness, and by endeavoring to keep faith with them, and to imitate the adroit methods of the French rather than the contemptuous hauteur of most of the English in intercourse with them.[6]

The reader will naturally go to the biographies of Johnson, Washington, and the other military leaders of their time, to those of a few civilians, like Franklin, and to the general histories of the French and Indian wars and of their separate campaigns, for much light upon the Indian in war; and these materials have been sufficiently explored in another volume of the present History.[7] These more general accounts are easily supplemented in the narratives of adventures and sufferings by a large class of persons who fell captive to the Indians, and lived to tell their tales.[8]

The earlier travellers, like P. E. Radisson,[9] Richard Falconer,[10] Le Beau,[11] and Jonathan

[1] Parkman in his *La Salle* lets us into the feelings of that explorer. La Salle's account of the Indians is translated in the *Mag. Amer. Hist.*, Ap., 1878.

[2] Cf. *Travels of several learned missionaries of the Society of Jesus, translated from the French* (London, 1714).

[3] See Vol. V. 245, 582.

[4] See Vol. V. p. 169.

[5] Other missionary records are noticed in Vol. V. Brinton enlarges upon the traces of Indian degradation following upon all missionary efforts among them. *Amer. Hero Myths*, 206, 231.

[6] The careers of Johnson and Croghan are traced in Vol. V.

[7] Vol. V. *passim.*

[8] Such were the *Travels* of Alexander Henry, the *Sufferings* of Peter Williamson, and the long list of so-called "Captivities" (see Vol. V. 186, 490). Probably Mr. Samuel G. Drake was for many years the most assiduous promoter of this class of books. This compiler's sympathetic sentiment clearly affected his rhetoric and sometimes the accuracy of his statements. Cf. titles of his books in Pilling, Sabin, and Field. Cf. Drake's *Aboriginal Races of North America, revised by H. L. Williams* (N. Y., 1880).

[9] *Voyages: an account of his travels and experiences among the North American Indians, from 1652 to 1684. Transcribed from original manuscripts in the Bodleian Library and the British Museum. With historical illustrations and an introduction by G. D. Scull* (Boston, 1885), a publication of the Prince Society.

[10] *Voyages*, 2d ed., London, 1724.

[11] See Vol. IV. p. 299.

Carver,[1] not to name others; the later ones, like Prinz Maximilian;[2] the experiences of various army officers on the frontiers, like Randolph B. Marcy[3] and J. B. Fry,[4] — all such books fill in the picture in some of its details.

The early life in the Ohio Valley was particularly conducive to such auxiliary helps in this study, and we owe more of this kind of illustration to Joseph Doddridge[5] than to any other. He was a physician and a missionary of the Protestant Episcopal Church, and in both his professions a man highly esteemed. He was born in Maryland in 1769, and in his fourth year removed with his family to the western border of the line between Pennsylvania and Virginia. With abundant opportunities in his youth of familiarity with the rudest experiences of frontier life near hostile Indians, he was a keen observer, a skilful narrator, and a diligent gatherer-up of historical and traditional lore from the hardy and well-scarred pioneers. He had received a good academic and medical education, and was a keen student of nature as well as of humanity. His pages give us most vivid pictures of life under the stern and perilous conditions; not, however, without their fascinations, of forest haunts, of rude and scattered cabins, of domestic and social relations, of the resources of the heroic whites, and of the qualities of Indian warfare in the desperate struggle with the invaders.[6]

Another early writer in this field was Dr. S. P. Hildreth of Ohio, who published his *Pioneer History* (Cincinnati, 1848) while some of the pioneers of the Northwest were still living, and the papers of some of them, like Col. George Morgan, could be put to service.[7] Dr. Hildreth, in his *Biographical and Historical Memoirs of the early Pioneer Settlers of Ohio* (Cincinnati, 1852), included a Memoir of Isaac Williams, who at the age of eighteen began a course of service and adventure in the Indian country, which was continued till its close at the age of eighty-four. When eighteen years of age he was employed by the government of Pennsylvania, being already a trained hunter, as a spy and ranger among the Indians. He served in this capacity in Braddock's campaign, and was a guard for the first convoy of provisions, on pack-horses, to Fort Duquesne, after its surrender to General Forbes in 1758. He was one of the first settlers on the Muskingum, after the peace made there with the Indians, in 1765, by Bouquet. His subsequent life was one of daring and heroic adventure on the frontiers.[8]

Passing to the more general works, the earliest treatment of the North American Indians, of more than local scope, was the work of James Adair, first published in 1775, a section of whose map, showing the position of the Indian tribes within the present United States at

[1] In 1766–68.

[2] *Reise in das Innere Nord Amerikas* (Coblenz, 1841); also in an English translation (London).

[3] *Border Reminiscences* (N. Y., 1872).

[4] *Army Sacrifices.*

[5] *Notes of the settlement and Indian wars of the western parts of Virginia and Pennsylvania, 1763–1783.* See Vol. V. p. 581.

[6] The question has often been discussed as to the origin of the title of "Indian summer," as applied to a beautiful portion of our autumnal season. Dr. Doddridge gives us an explanation of its original significance, or, at least, of an association with it, which would make a feeling of dread rather than of romance its most striking suggestion. He says that to a backwoodsman the term in its original import would cause a chill of horror. The explanation is as follows: The white settlers on the frontiers found no peace from Indian alarms and onsets save in the winter. From spring to the early part of the autumn, the settlers, cooped up in the forts, or ever at watch in their fields, had no security or comfort. The approach of winter was hailed as a jubilee in cabin and farm, with bustle and hilarity. But after the first set-in of winter aspects came a longer or shorter interval of warm, smoky, hazy weather, which would tempt the Indians — as if a brief return of summer — to renew their incursions on the frontiers. The season, then, was an "Indian summer" only for blood and mischief. So the spell of warm open weather, of melting snows, in the latter part of February — a premature spring — was a period of dread for the frontiersmen. It was called the "pawwawing days," as the Indians were then holding their incantations and councils for rehearsing for their spring war-parties.

[7] Cf. further on Hildreth and his books our Vol. VII. p. 536.

[8] There are notices of other books of this kind in Vols. V. and VII. of the present History. Particularly, may be mentioned Joseph Pritt's *Mirror of Olden Time* (Chambersburg, Va., 1848; 2d ed., Abingdon, Va., 1849), in which the most interesting portions are the personal narratives of such captives to the Indians as Col. James Smith, John M'Cullough, and others, the full credibility of which is vouched for by those who knew them as neighbors and associates. This class of narratives by men who for years, willingly or unwillingly, affiliated with their wild captors make very intelligible to us the fact that the whites are much more readily Indianized than are Indians led to conform to the ways of civilization. Cf. Archibald Loudon's *Selection of some of the most interesting narratives, of outrages, committed by the Indians, in their wars with the white people. Also, an account of their manners, customs, traditions, etc.* (Carlisle, 1808–11; Harrisburg, 1888).

that time, is given elsewhere.[1] This *History of the American Indians* was later included by Kingsborough in *Antiquities of Mexico* (vol. viii. London, 1848).[2] At just about the same time (1777), Dr. Robertson, in his *America* (book iv.), gave a general survey, which probably represents the level of the best European knowledge at that time.

It was not till well into the present century that much effort was made to summarize the scattered knowledge of explorers like Lewis and Clarke and of venturesome travellers. In 1819, we find where we might not expect it about as good an attempt to make a survey of the subject as was then attainable, in Ezekiel Sanford's *History of the United States before the Revolution*, — a book, however, which was pretty roundly condemned for its general inaccuracy by Nathan Hale in the *North American Review*. The next year the Rev. Jedediah Morse made *A report to the secretary of war, on Indian affairs, comprising a narrative of a tour in 1820, for ascertaining the actual state of the Indian tribes in our country* (New Haven, 1822), which is about the beginning of systematized knowledge, though the subject in its scientific aspects was too new for well-studied proportions. The *Report*, however, attracted attention and instigated other students. De Tocqueville, in 1835, took the Indian problem within his range.[3] Albert Gallatin printed, the next year, in the second volume of the *Archæologia Americana* (Cambridge, 1836), his *Synopsis of the Indian Tribes within the United States east of the Rocky Mountains;* and though his main purpose was to explain the linguistic differences, his introduction is still a valuable summary of the knowledge then existing.

There were at this time two well-directed efforts in progress to catch the features and life of the Indians as preserving their aboriginal traits. Between 1838 and 1844 Thomas L. McKenney and James Hall published at Philadelphia, in three volumes folio, their *History of the Indian tribes of North America, with biographical sketches of the principal chiefs. With 120 portrs. from the Indian gallery of the Department of war, at Washington*;[4] and in 1841 the public first got the fruits of George Catlin's wanderings among the Indians of the Northwest, in his *Letters and notes on the manners, customs and condition of the North American Indians, written during eight years' travel among the wildest tribes of Indians in North America, in 1832–39* (N. Y., 1841), in two volumes. The book went through various editions in this country and in London.[5] It was but the forerunner of various other books illustrative of his experience among the tribes; but it remains the most important.[6] The sufficient summary of all that Catlin did to elucidate the Indian character and life will be found in Thomas Donaldson's *George Catlin's Indian Gallery in the U. S. Nat. Museum, with memoirs and statistics*, being part v. of the *Smithsonian Report* for 1885.[7]

The great work of Schoolcraft has been elsewhere described in the present volume.[8]

The agencies for acquiring and disseminating knowledge respecting the condition, past and present, of the red race have been and are much the same as those which improve the study of the archæological aspects of their history: such publications as the *Transactions of the American Ethnological Society* (1845–1848); the *Reports* of the governmental geological surveys, and those upon transcontinental railway routes; those upon national boundaries; those of the

[1] Vol. VII. p. 448. As types of successive ranges of anthropological studies see Happel's *Thesaurus Exoticorum* (Hamburg, 1688); Stuart and Kuyper's *De Mensch zoo als hij voorkomt* (Amsterdam, 1802), vol. vi., and the better known *Researches* of Prichard (vol. v.).

[2] See Vol. V. 68.

[3] See Vol. VII. 264.

[4] The original paintings for the plates are now in the Peabody Museum (*Report*, xvi. 189). M'Kenney also published his *Memoirs, official and personal, with sketches of travel among the northern and southern Indians* (N. Y., 1846), in two volumes. He had been in 1816 the agent of the United States in dealing with the Indians, and in 1824 had been put at the head of the Indian bureau.

[5] The English editions are generally called *Illustrations of the Manners*, etc.

[6] The best bibliographical record of Catlin's publications is in Pilling's *Bibliog. Siouan languages* (1887), p. 15. Cf. Field, p. 63; Sabin, iii. p. 436.

[7] The volume contains three interesting portraits of Catlin and reimpressions of his drawings as originally published.

[8] For diversity of opinions respecting it see Allibone's *Dictionary*. The modern scientific historian and ethnologist think in conjunction in giving it a low rank compared with what such a book should be. The fullest account of the bibliography of this and of Schoolcraft's other books is in Pilling's *Proof-sheets*. Whatever credit may accrue to Schoolcraft is kept out of sight in the title-page of a condensation of the book, which has some interspersed additions from other sources, all of which are obscurely included, so that the authorship of them is uncertain. The book is called *The Indian Tribes of the United States, edited by F. S. Drake* (Philad., 1884), in 2 vols. There is another conglomerate and useful book, edited by W. W. Beach, *The Indian Miscellany; papers on the history, antiquities [etc.] of the American aborigines* (Albany, 1877), which is a collection of magazine, review, and newspaper articles by various writers, usually of good character.

Smithsonian Institution, with its larger *Contributions*, and of late years the *Reports of the Bureau of Ethnology;* the reports of such institutions as the Peabody Museum of Archæology; and those of the Indian agents of the Federal government, of chief importance among which is Miss Alice C. Fletcher's *Indian Education and Civilization*, published by the Bureau of Education (Washington, 1888). To these must be added the great mass of current periodical literature reached through *Poole's Index*, and the action and papers of the government, not always easily discoverable, through Poore's *Descriptive Catalogue*.

The maps of the seventeenth and eighteenth centuries are, in addition to the reports of traders, missionaries, and adventurers, the means which we have of placing the territories of the many Indian tribes which, since the contact of Europeans, have been found in North America; but the abiding-places of the tribes have been far from permanent. Many of these early maps are given in other volumes of the present History.[1] Geographers like Hutchins and military men like Bouquet found it incumbent on them to study this question.[2] Benjamin Smith Barton surveyed the field in 1797; but the earliest of special map seems to have been that compiled by Albert Gallatin, who endeavored to place the tribes of the Atlantic slope as they were in 1600, and those beyond the Alleghanies as they were in 1800. The map in the *American Gazetteer* (London, 1762) gives some information,[3] and that of Adair in 1775 is reproduced elsewhere.[4] In 1833, Catlin endeavored to give a geographical position to all the tribes in the United States on a map, given in his great work and reproduced in the *Smithsonian Report*, part v. (1885). In 1840 compiled maps were given on a small scale in George Bancroft's third volume of his *United States*, and another in Marryat's *Travels*, vol. ii. The government has from time to time published maps showing the Indian occupation of territory, and the present reservations are shown on maps in Donaldson's *Public Domain* and in the *Smithsonian Report*, part v. (1885).[5]

The migrations and characteristics of the Eskimos have already been discussed,[6] and the journals of the Arctic explorers will yield light upon their later conditions. We find those of the Hudson Bay region depicted in all the books relating to the life of the Company's factors.[7] The Beothuks of Newfoundland, which are thought to have become extinct in 1828,[8] are described in Hatton and Harvey's *Newfoundland;* by T. G. B. Lloyd in the *Journal of the Anthropological Institute* (London), 1874, p. 21; 1875, p. 222; by A. S. Gatschet in the *American Philosophical Society's Transactions* (Philad., 1885–86, vols. xxii. xxiii.); and in the *Nineteenth Century*, Dec., 1888. Leclercq in his *Nouvelle Relation de la Gaspésie* (Paris, 1691) gives us an account of the natives on the western side of the gulf.[9]

The Micmacs of Nova Scotia are considered in Lescarbot and the later histories and in the documentary collections of that colony; and as they played a part in the French wars, the range of that military history covers some material concerning them.[10]

For the aborigines of Canada, we easily revert to the older writers, like Champlain, Sagard, Creuxius, Boucher, Leclercq, Lafitau; the *Voyage curieux et nouveau parmi les sauvages* of Le Beau (Amsterdam, 1738); the *Nouvelle France* of Charlevoix; the *Histoire de l'Amérique Septentrionale* (Paris, 1753) of Bacqueville de la Potherie;[11] and to the later historians, like Fer-

1 Particularly in Vol. IV.

2 Cf. Vol. VI. 610, 611, 650.

3 A part of it is reproduced by J. Watts de Peyster in his *Miscellanies by an Officer*, part ii. (N. Y., 1888).

4 Vol. VII. p. 448.

5 There is a map of the distribution of Indians in the eastern part of the United States in Cassino's *Standard Nat. Hist.*, vi. 147.

6 See *ante*, p. 106.

7 Paul Kane's *Wanderings of an artist among the Indians* is translated by Ed. Delessert in *Les Indiens de la baie d'Hudson* (Paris, 1861).

8 The truth seems to be that some were last seen in that year. It is uncertain whether they died out, or the final remnant crossed into Labrador.

9 See Vol. IV. p. 292.

10 Cf. *Account of the customs and manners of the Micmakis and Maricheets savage nations. From an original French manuscript letter, never published. Annexed, pieces relative to the savages, Nova Scotia* [etc.] (London, 1758); J. G. Shea in *Hist. Mag.*, v. 290; *No. Am. Rev.*, vol. cxii., Jan., 1871. For missions among them see Vol. IV. p. 268.

11 See Vol. IV. p. 299. The Hurons as the leading stock in Canada are, of course, to be studied in the *Jesuit Relations* and in all the other accounts of the Catholic missions in Canada, as well as in the early historical narratives, alluded to in the text, and in such special books as the Sieur Gendron's *Pays des Hurons* (see Vol. IV. 305), and in the accounts of leading missionaries like Jean de Brébœuf. Cf. Félix Martin's *Hurons et Iroquois* (Paris, 1877); J. M. Lemoine in *Maple Leaves*, 2d ser. (1873); Cayaron's *Chaumont*, 1639–1693, and his *Autobiographie et pièces inédites* (Poitiers, 1869); B. Sulte on the Iroquois and Algonquins

naïd (ch. 7, 8), Garneau (2d book), and Warburton's *Conquest of Canada* (ch. 6, 7, 8). The Abenaki, which lay between the northeastern settlements of the English and the French, are specially treated by Bacqueville (vol. iv.), in the *Maine Hist. Soc. Collections*, vol. vi., and in Maurault's *Histoire des Abenakis* (1866).[1]

The rich descriptive literature of the early days of New England gives us much help in understanding the aboriginal life. We begin with John Smith, and come down through a long series of writers like Governor Bradford and Edward Winslow for Plymouth; Gorges, Morton, Winthrop, Higginson, Dudley, Johnson, Wood, Lechford, and Roger Williams for other parts. These are all characterized in another place.[2] The authorities on the early wars with the Pequots and with Philip, the accounts of Daniel Gookin, who knew them so well,[3] and chance visits like those of Rawson and Danforth,[4] furnish the concomitants needful to the recital. The story of the labors of Eliot, Mayhew, and others in urging the conversion of the natives is based upon another large range of material, in which much that is merely exhortative does not wholly conceal the material for the historian.[5] Here too the chief actors in this work help us in their records. We have letters of Eliot, and we have the tracts which he was instrumental in publishing.[6] There is also a letter of Increase Mather to Leusden on the Indian missions (1688).[7] Gookin tells us of the sufferings of the Christian Indians during the war of 1675,[8] and he gives also reports of the speeches of the Indian converts.[9] The Mayhews of Martha's Vineyard, Thomas, Matthew, and Experience, have left us records equally useful.[10]

The principal student of the literature, mainly religious, produced in the tongue of the natives, has been Dr. James Hammond Trumbull, of Hartford, and he has given us the leading accounts of its creation and influence.[11] It was this propagandist movement that led Eleazer Wheelock into establishing (1754) an Indian Charity School at Lebanon, Connecticut, which finally removed to Hanover, in New Hampshire, and became (1769) Dartmouth College.[12]

The New England tribes have produced a considerable local illustrative literature. The Kennebecs and Penobscots in Maine are noticed in the histories of that State, and in many of the local monographs.[13] For New Hampshire, beside the state histories,[14] the Pemigewassets are described in Wm. Little's *Warren*

in the *Revue Canadienne* (x. 606); D. Wilson on the Huron-Iroquois of Canada in *Roy. Soc. Canada, Proc.* (1884, vol. ii.), and references, *post*, Vol. IV. p. 307. W. H. Withrow has a paper on the last of the Hurons in the *Canadian Monthly* (ii. 409).

[1] All of these books are further characterized in Vols. IV. and V. Cf. also J. Campbell in the *Quebec Lit. and Hist. Soc. Trans.*, 1881, and Wm. Clint in *Ibid.* 1877; and Daniel Wilson in *Am. Assoc. Adv. Sci. Proc.* (1882), vol. xxxi., and in his *Prehist. Man*, ii. Also Vetromile's *Abnakis* (N. Y., 1866).

[2] Vol. III.

[3] "Hist. Coll. of the Indians of N. E." in *Mass. Hist. Soc. Coll.*, i.

[4] Noyes' *New England's Duty*, Boston, 1698.

[5] Cf. Neal's *New England*, i. ch. 6; *Conn. Evang. Mag.*, ii., iii., iv.; *Amer. Q. Reg.*, iv.; *Sabbath at Home*, Apr.–July, 1868.

[6] Cf. his letters in *Mass. Hist. Soc. Proc.*, Nov., 1879; *N. E. Hist. Gen. Reg.*, July, 1882; Birch's *Life of Robert Boyle;* and the lives of Eliot. For the Eliot tracts see our Vol. III. p. 355. Marvin's reprint of Eliot's *Brief Narration* (1670) has a list of writers on the subject. Cf. Martin Moore on Eliot and his Converts in the *Amer. Quart. Reg.*, Feb., 1843, reprinted in Beach's *Indian Miscellany*, p. 405; Ellis's *Red Man and White Man in No. America;* Jacob's *Praying Indians;* and Bigelow's *Natick.*

[7] Sabin, x. p. 191.

[8] *Archæologia Amer.*, ii.

[9] Cf. John Gillies' *Hist. Coll. relating to remarkable periods of the success of the Gospel* (Glasgow, 1754).

[10] *Success of the gospel among the Indians of Martha's Vineyard* (1694). *Conquests and Triumphs of Grace* (1696), which is reprinted in part in Mather's *Magnalia. Indian Converts of Martha's Vineyard* (1727), and Experience, its author, appended to one of his discourses a "State of the Indians, 1694–1720."

[11] *Origin and early progress of Indian missions in New England, with a list of books in the Indian language printed at Cambridge and Boston, 1653–1721* (Worcester, 1874, or *Amer. Antiq. Soc. Proc.*, Oct., 1873); a paper on the Indian tongue and its literature in the *Mem. Hist. Boston*, i. 465.

[12] Wheelock has given us *A brief narrative of the Indian Charity School* (London, 1766; 2d ed., 1767), and a series of tracts portray its later progress. Cf. McClure and Parish's *Memoir of Wheelock.* Samson Occum and Brant were his pupils. Also see Miss Fletcher's *Report*, p. 94, and S. C. Bartlett in *The Granite Monthly* (1888), p. 277.

[13] See Vol. III. p. 364. There is a bibliography of the Indians in Maine in the *Hist. Mag.*, March, 1870, p. 164. Cf. Hanson's *Gardiner*, etc.; the histories of Norridgewock by Hanson and Allen; Sabine in the *Christian Examiner*, 1857; and *Mass. Hist. Soc. Coll.*, vols. iii., ix. On the Maine missions, see *post*, Vol. IV. 300; and R. H. Sherwood in the *Catholic World*, xxii. 656.

[14] See Vol. III. p. 367.

(Concord, 1854), and the Pemicooks in the *N. H. Hist. Collections*, i.; Bouton's *Concord*, Moore's *Concord*, and Potter's *Manchester*.

The Archives of Massachusetts yield a large amount of material respecting the relations of the tribes to the government, particularly at the eastward, while Maine was a part of the colony;[1] and the large mass of its local histories, as well as those of the State,[2] supply even better than the other New England States material for the historian.[3]

The Indians of Rhode Island are noted by Arnold in his *Rhode Island* (ch. 3), and some special treatment is given to the Narragansetts and the Nyantics.[4] Those of Connecticut have a monographic record in De Forest's *Indians of Connecticut*, as well as treatment otherwise.[5]

Palfrey (*Hist. New England*, i. ch. 1, 2), in his general survey of the Indians of New England, delineates their character with much plainness and discrimination, and it is perhaps as true a piece of characterization as any we have.[6]

The Iroquois of New York have probably been the subject of a more sustained historical treatment than any other tribes. We have the advantage, in studying them, of the observations of the Dutch,[7] as well as of the French and English. The French priests give us the earliest accounts, particularly the relations of Jogues and Milet.[8]

The story of the French missions in New York is told elsewhere;[9] those of the Protestant English yield us less.[10]

We have another source in the local histories of New York.[11] The earliest of the general histories of the Iroquois is that of Cadwallader

[1] Cf. *Report on the Mass. Archives* (1885).

[2] Vol. III. p. 362.

[3] Dr. Ellis has a paper on the Indians of eastern Massachusetts in the *Mem. Hist. Boston*, i. 241. For the middle regions there are Epaphras Hoyt's *Antiquarian Researches* (Greenfield, 1824), and Temple's *North Brookfield*, not to name other books. For the Stockbridge tribe and the Housatonics, see Samuel Hopkins' *Hist. Memoirs relating to the Housatunnuk Indians* (1753); Jones' *Stockbridge;* Charles Allen's *Report on the Stockbridge Indians* (Boston, 1870; *Ho. Doc. Mass. Leg.*, no. 13, of 1870); S. Orcutt's *Indians of the Housatonic and Naugatuck Valleys* (Hartford, 1882); *Mag. Amer. Hist.*, Dec., 1878; and Miss Fletcher's *Report*, pp. 38, 90. For the Wampanoags on the borders of Rhode Island, see *Smithsonian Report*, 1883; and William J. Miller's *Notes concerning the Wampanoag tribe of Indians, with some account of a rock picture on the shore of Mount Hope Bay, in Bristol, R. I.* (Providence, 1880).

[4] Potter's *Early Hist. of Narragansett; R. I. Hist. Coll.*, viii.; Henry Bull's Memoir in *R. I. Hist. Mag.*, April, 1886; Usher Parsons on the Nyantics in *Hist. Mag.*, Feb., 1863.

[5] Theo. Dwight's *Connecticut*, ch. 5–7; Trumbull's *Connecticut*, ch. 5, 6; Ellis' *Life of Capt. Mason;* W. L. Stone's *Uncas and Miantonomoh;* S. Orcutt's *Stratford and Bridgeport* (1886); Luzerne Ray in *New Englander*, July, 1843 (reprinted in Beach's *Ind. Miscellany*).

On the Pequods, see Wm. Apes' *Son of the Forest*, and other small books by this member of the tribe, published from 1829 to 1837; Lossing in *Scribner's Monthly*, ii., Oct., 1871 (included in Beach). Cf. our Vol. III. p. 368.

[6] Further modern portraitures can be found in Dwight's *Travels;* Barry's *Massachusetts;* Felt's *Eccles. Hist. N. E.* (p. 279); Samuel Eliot on the "Early relations with the Indians" in the volume of the *Mass. Hist. Soc. Lectures;* Zachariah Allen on *The conditions of life, habits, and customs of the native Indians of America, and their treatment by the first settlers. An address before the Rhode Island Historical Society, Dec. 4, 1879* (Providence, 1880). Cf. on the Indians and the Puritans, *Amer. Chh. Review*, iii. 208, 359.

[7] Cf. Brodhead's *New York;* the *Doc. Hist. N. Y.;* and Wm. Eliot Griffis' *Arent van Curler and his policy of peace with the Iroquois* (1884).

[8] Cf. Vol. IV. 306. The best source for the story of Jogues is Felix Martin's *Life of Father Isaac Jogues, missionary priest of the Society of Jesus, slain by the Mohawk Iroquois, in the present state of New York, Oct. 18, 1646. With [his] account of the captivity and death of René Goupil, slain Sept. 29, 1642. Translated from the French by J. G. Shea* (New York, 1885). It is accompanied by a map of the county by Gen. John S. Clark, indicating the sites of the Indian villages and missions, which is an improvement upon Clark's earlier map, given *post*, Vol. IV. 293. Cf. *Hist. Mag.*, xii. 15; Hale's *Book of Rites*, introd. W. H. Withrow has a paper on Jogues in the *Proc. Roy. Soc. Canada*, iii. (2) 45.

[9] Vol. IV. 279, 309.

[10] Cf. D. Humphrey's *Hist. Acc. of the Soc. for propagating the Gospel* (1730); *Doc. Hist. N. Y.*, iv.; A. G. Hopkins in the *Oneida Hist. Soc. Trans.*, 1885–86, p. 5; W. M. Beauchamp in *Am. Chh. Rev.*, xlvi. 87; S. K. Lothrop's *Kirkland;* and Miss Fletcher's *Report* (1888), p. 85.

[11] Sylvester's *Northern New York;* Clark's *Onondaga;* Jones's *Oneida County;* Simms' *Schoharie County;* Benton's *Herkimer County;* C. E. Stickney's *Minisink Region;* G. H. Harris' *Aboriginal occupation of the lower Genesee County* (Rochester, 1884,—taken from W. F. Peck's *Semi-Centennial Hist. of Rochester*); Ketchum's *Buffalo;* John Wentworth Sanborn's *Legends, Customs, and Social Life of the Seneca Indians* (Gowanda, N. Y., 1878). On the origin of the name Seneca, see O. H. Marshall's *Hist. Writings*, p. 231.

Colden, and the best edition is *The history of the five Indian nations depending on the province of New-York. Reprinted exactly from Bradford's New York edition, 1727; with an introduction and notes by J. G. Shea* (New York, 1866).[1] The London reprints of 1747, and later, unfortunately added to the title *Five Indian Nations* [*of Canada*] the words in brackets. This was the very point denied by the English, who claimed that the French had no territorial rights south of the lakes. Otherwise his title conveys two significant facts: first, that the English had come to regard the Five Nations as their "dependants"; and second, that these Indians actually were a barrier between them and the French. There was something farcical in the formula used by Sir Wm. Johnson in a letter to the ministry: "The combined tribes have taken arms against his Britannic Majesty." The Mohawks had been induced to ask that the Duke of York's arms should be attached to their castles. This had been assented to, and allowed as a security against the inroads of the French — a sort of talismanic charm which might be respected by European usage. But those ducal bearings did not have their full meaning to the Iroquois as binding their own allegiance, nor were the Six Nations ever the gainers by being thus constructively protected.

Colden was born in Scotland in 1688, and died on Long Island in 1776. He was a physician, botanist, scholar, and literary man, able and well qualified in each pursuit. The greater part of his long life was spent in this country. As councillor, lieutenant-governor, and acting governor, he was in the administration of New York from 1720 till near his death. He was a most inquisitive and intelligent investigator and observer of Indian history and character. In dedicating his work to General Oglethorpe, he claims to have been prompted to it by his interest in the welfare of the Five Nations. He is frank and positive in expressing his judgment that they had been degraded and demoralized by their intercourse with the whites. He says that he wrote the former part of his history in New York, in 1727, to thwart the manœuvres of the French in their efforts to monopolize the western fur trade. They had been allowed to import woollen goods for the Indian traffic through New York. Governor Burnet advised that a stop be put to this abuse. The New York legislature furthered his advice, and built a fort at Oswego for three hundred traders. When the Duke of York was represented here by Governor Dongan, and "Popish interests" were allowed sway, — there being at the time a mean pretence of amity between England and France, — the interests of the former were sacrificed to those of the latter. This, of course, had a bad influence on the Five Nations, as leading them to regard the French as masters. The whole of the first part of Colden's History deals with the Iroquois as merely the centre of the rivalry between the French and the English with their respective savage allies. The English had the advantage at the start, because from the earliest period when Champlain made a hostile incursion into the country of the Iroquois, attended by their Huron enemies, the relations of enmity were decided upon, and afterwards were constantly imbittered by a series of invasions. The French sought to undo their own influence of this sort when it became necessary for them to try to win over the Iroquois to their own interest in the fur traffic. The Confederacy which existed among the Five, and afterwards the Six, Nations was roughly tried when there was so sharp a bidding for alliances between one or another of the tribes by their European tempters. An incidental and very embarrassing element came in to complicate the relations of the parties, English, French, and Indians, on the grounds of the claim advanced by the English to hold the region beyond the Alleghanies by cession from the Iroquois in a council in 1726. The question was whether the Iroquois had previous to that time obtained tenable possession of the Ohio region, by conquest of the former occupants. It would appear that after that conquest that region was for a time wellnigh deserted. When it was to some extent reoccupied, the subsequent hunters and tenants of it denied the sovereignty of the Iroquois and the rights of the English intruders who relied upon the old treaty of cession.

The rival French history while Colden was in vogue was the third volume of Bacqueville de la Potherie's *Hist. de l'Amérique Septentrionale* (Paris, 1753); and another contemporary English view appeared in Wm. Smith's *Hist. of the Province of New York* (1757).[2] Nothing appeared after this of much moment as a general account of the Six Nations till Henry R. Schoolcraft made his *Report* to the New York authorities in 1845, which was published in a more popular form in his *Notes on the Iroquois, or Contributions to American history, antiquities,*

[1] See Vol. IV. 299. Shea says the only copies known of the 1727 edition are those noted in the catalogues of H. C. Murphy, Menzies, Brinley, and T. H. Morrell. Stevens noted a copy in 1885, at £42. The *Murphy Catalogue* gives the various editions. Cf. Sabin and Pilling. There is an account of Colden in the *Hist. Mag.*, Jan., 1865. Palfrey (*New England*, iv. 40) warns the student that Colden must be used with caution, and that he needs to be corrected by Charlevoix.

[2] See Vol. V. 618.

and general ethnology (Albany, 1847), a book not valued overmuch.[1]

Better work was done by J. V. H. Clark in what is in effect a good history of the Confederacy, in his *Onondaga* (Syracuse, 1849). The series of biographies by W. L. Stone, of Sir William Johnson, Brant, and Red Jacket, form a continuous history for a century (1735–1838).[2] The most carefully studied work of all has been that of Lewis H. Morgan in his *League of the Iroquois* (1851), a book of which Parkman says (*Jesuits*, p. liv) that it commands a place far in advance of all others, and he adds, "Though often differing widely from Mr. Morgan's conclusions, I cannot bear too emphatic testimony to the value of his researches."[3] The latest scholarly treatment of the Iroquois history is by Horatio Hale in the introduction to *The Iroquois Book of Rites* (Philad., 1883), which gives the forms of commemoration on the death of a chief and upon the choice of a successor.[4]

Moving south, the material grows somewhat scant. There is little distinctive about the New Jersey tribes.[5] For the Delawares and the Lenni Lenape, the main source is the native bark record, which as Walam-Olum was given by Squier in his *Historical and Mythological Traditions of the Algonquins*,[6] as translated by Rafinesque,[7] while a new translation is given in D. G. Brinton's *Lenâpé and their legends; with the complete text and symbols of the Walam Olum, a new translation, and an inquiry into its authenticity* (Philadelphia, 1885), making a volume of his *Library of aboriginal American literature;* and the book is in effect a series of ethnological studies on the Indians of Pennsylvania, New Jersey, and Maryland.[8]

In addition to some of the early tracts[9] on Maryland[10] and Virginia and the general histories, like those of Beverly, and Stith for Virginia, and particularly Bozman for Maryland, with Henning's *Statutes*, and some of the local histories,[11] we have little for these central coast regions.[12] In Carolina we must revert to such early books as Lawson and Brickell; to Carroll's *Hist. Collections of South Carolina*, and to occasional periodic papers.[13]

Farther south, we get help from the early

[1] Cf. Vol. IV. 297. Schoolcraft later included in his *Indian Tribes* a reprint of David Cusick's *Ancient Hist. of the Six Nations* (1825), the work of a Tuscarora chief. Brinton (*Myths*, 108) calls it of little value. Elias Johnson, another Tuscarora, printed a little *Hist. of the Six Nations* at Lockport in 1881.

[2] See Vol. V., VI., VII.

[3] This was the earliest of Morgan's important writings on the Iroquois, but the full outcome of all his views on the Indian character and life can only be studied by following him through his later *Ancient Society*, his *Systems of Consanguinity and Affinity*, and his *Houses and House-life of the American Aborigines*. Cf. Pilling's *Proof-sheets* for a conspectus of his works. Morgan's early studies on the Iroquois sensibly affected his judgment in his later treatment of all other North American tribes.

[4] Hale has also contributed to the *Mag. Amer. Hist.*, 1885, xiii. 131, a paper on "Chief George H. M. Johnson, his life and work among the Six Nations;" and to the *Amer. Antiquarian*, 1885, vii. 7, one on "The Iroquois sacrifice of the white dog."

A few other references on the Iroquois follow: Drake's *Book of the Indians*, book v.; D. Sherman in *Mag. West. Hist.*, i. 467; W. W. Beauchamp in *Amer. Antiquarian* (Nov., 1886), viii. 358; D. Gray on the last Indian council in the Genesee Country, in *Scribner's Mag.*, xxv. 338; *Penna. Mag.*, i. 163, 319; ii. 407. For the Schaghticoke tribe, see *Hist. Mag.*, June, 1870; and for those of the Susquehanna Valley, Miner's *Wyoming* and Stone's *Wyoming*. E. M. Ruttenber's *Indian Tribes of the Hudson River* (Albany, 1872) is an important book. Miss Fletcher's *Report* includes a paper on the N. Y. Indians, by F. B. Hough.

[5] *N. Jersey Hist. Soc. Proc.*, vol. iv.

[6] There is a sketch of this singular character in Brinton's *Lenape*, ch. 7.

[7] Also *Amer. Whig Review*, Feb., 1849; and in Beach's *Indian Miscellany*.

[8] We may also note: D. B. Brunner's *Indians of Berks county, Pa.; being a summary of all the tangible records of the aborigines of Berks County* (Reading, Pa., 1881), and W. J. Buck's "Lappawinzo and Tishcohan chiefs of the Lenni Lenape" in the *Penna. Mag. of Hist.*, July, 1883, p. 215. The early writers to elucidate the condition of the Delawares soon after the white contact are Vanderdonck, Campanius, Gabriel Thomas, and later there is something of value in Peter Kalm's *Travels*. The early authorities on Pennsylvania need also to be consulted, as well as the *Penna. Archives*, and the *Collections* of the Penna. Hist. Soc., and its *Bulletin*, whose first number has Ettwein's *Traditions and language of the Indians*. Of considerable historical value is Charles Thomson's *Enquiry* (see Vol. V. 575), and the relations of the Quakers to the tribes are surveyed in an *Account of the Conduct of the Society of Friends towards the Indian Tribes* (Lond., 1844); but other references will be found *post*, Vol. V. 582, including others on the Moravian missions, the literature of which is of much importance in this study. Cf. Chas. Beatty's *Journal of a two months' tour* (London, 1768), the works of Heckewelder and Loskiel, and Schweinitz's *Zeisberger*. Cf. Miss Fletcher's *Report*, p. 78.

[9] Vol. III., under Virginia and Maryland. Cf. *Hist. Mag.*, March, 1857.

[10] For instance, the *Relatio itineris in Marylandiam*.

[11] See Vol. III.

[12] The latest summary is in Miss Fletcher's *Report*, ch. 2 and 3.

[13] F. Kidder in *Hist. Mag.* (1857), i. 161. Doyle's *English in America, Virginia, etc.* (London, 1882) gives a brief chapter to the natives. Cf. travels of Bartram and Smyth, and Miss Fletcher's *Report*, ch. 19.

Spanish and French, — Herrera, Barcia, the chroniclers of Florida, Davilla Padilla, Laudonnière, the memorials of De Soto's march, the documents in the collections of Ternaux, Buckingham Smith, and B. F. French, all of which have been characterized elsewhere.[1]

The later French documents in Margry and the works of Dumont and Du Pratz give us additional help.[2] On the English side we find something in Coxe's *Carolana*, in Timberlake, in Lawson,[3] in the Wormsloe quartos on Georgia and South Carolina,[4] and in later books like Filson's *Kentucke*, John Haywood's *Nat. and Aborig. Hist. Tennessee* (down to 1768), Benjamin Hawkins's *Sketch of the Creek Country* (1799), and Jeffreys' *French Dominion in America.* Brinton, in *The National Legend of the Chata-Mus-ko-kee tribes* (in the *Hist. Mag.*, Feb., 1870), printed a translation of "What Chekilli the head chief of the upper and lower Creeks said in a talk held at Savannah in 1735," which he derived from a German version preserved in *Herrn Philipp Georg Friederichs von Reck Diarium von seiner Reise nach Georgien im Jahr 1735* (Halle, 1741).[5] This legend is taken by Albert S. Gatschet, in his *Migration Legend of the Creek Indians, with a linguistic, historic, and ethnographic introduction* (Philad., 1884), as a centre round which to group the ethnography of the whole gulf water-shed of the Southern States, wherein he has carefully analyzed the legend and its language, and in this way there is formed what is perhaps the best survey we have of the southern Indians.

This we may supplement by Pickett's *Alabama.* Col. C. C. Jones, Jr., has given us a sketch (1868) of Tomo-chi-chi, the chief who welcomed Oglethorpe.[6]

C. C. Royce has given us glimpses of the relations of the Cherokees and the whites in the *Fifth Report, Bureau of Ethnology.* A recent book is G. E. Foster's *Se-Quo-Yah, the American Cadmus and modern Moses. A biography of the greatest of redmen, around whose life has been woven the manners, customs and beliefs of the early Cherokees, with a recital of their wrongs and progress toward civilization* (Philadelphia, etc., 1885.)[7] Gatschet cites the *Mémoire* of Milfort, a war chief of the Creeks.[8] The Chippewas are commemorated in a paper in Beach's *Indian Miscellany.*[9] The Seminole war produced a literature[10] bearing on the Florida tribes. Bernard Romans' *Florida* (1775) gave the comments of an early English observer of the natives of the southeastern parts of the United States. Dr. Brinton's *Floridian Peninsula* and the paper of Clay Maccauley on the Seminoles in the *Fifth Rept. Bureau of Ethnology* help out the study. The Natchez have been considered as allied with the races of middle America,[11] and we may go back to Garcilasso de la Vega and the later Du Pratz for some of the speculations about them, to be aided by the accounts we get from the French concerning their campaigns against them.[12]

The placing of the tribes in the Ohio Valley is embarrassed by their periodic migrations.[13] Brinton follows the migrations of the Shawanees,[14] and C. C. Royce seeks to identify them in their wanderings.[15] O. H. Marshall tracks other tribes

[1] Vol. II.

[2] Vol. V. p. 65.

[3] Vol. V. p. 69, 344, 393.

[4] Vol. V. p. 401.

[5] This also makes part of the Urlsperger tract, *Ausführliche Nachricht von den Saltzburgischen Emigranten* (Halle, 1835). See Vol. V. p. 395.

[6] Vol. V. p. 399. Cf. *Mag. Amer. Hist.*, v. 346.

[7] The long contested case of the Cherokees *v.* Georgia brought out much material. Cf. Vol. VII. p. 322, and *Poole's Index*, p. 225. There is a somewhat curious presentation of the Cherokee mind in the address of Dewi Brown in the *Mass. Hist. Soc. Proc.*, xii. 30.

[8] The histories of the Creek war give some material. See Vol. VII. and Harrison's *Life of John Howard Payne*, ch. 4. Cf. *Poole's Index*, p. 314.

[9] Cf. *Poole's Index.*

[10] See Vol. VII.

[11] Cf. Claiborne's *Mississippi*, i.; Brinton in *Hist. Mag.*, 2d ser., vol. i. p. 16; and E. L. Berthoud's *Natchez Indians* (Golden, 1886), a pamphlet.

[12] Vol. V. p. 68. Cf. also an abridged memoir of the missions in Louisiana by Father Francis Watrin, Jesuit, 1764–65, in *Mag. West. Hist.*, Feb., 1885, p. 265; the *Travels into Arkansa territory*, 1819, by Thomas Nuttall (Philad., 1821), for other accounts of the aboriginal inhabitants of the banks of the Mississippi; the *History of Kansas* (Chicago, 1883), p. 58; and the *Proceedings* of the Kansas Hist. Society.

[13] Cf. Vol. IV. p. 298; and C. W. Butterfield in the *Mag. West. Hist.*, Feb., 1887; and on the Indian occupation of Ohio, *Ibid.*, Nov., 1884. David Jones' *Two Visits*, 1772–73, concerns the Ohio Indians. Our Vol. V. covers this region during the French wars. J. R. Dodge's *Red Man of the Ohio Valley, 1650–1795* (Springfield, O., 1860), is a popular book.

[14] *Hist. Mag.*, x. (Jan., 1866).

[15] *Mag. West. Hist.*, ii. 38.

along the Great Lakes.[1] Hiram W. Beckwith places those in Illinois and Indiana.[2] The Wyandots[3] have been treated, as affording a type for a short study of tribal society, by Major Powell in the *Bureau of Ethnology, First Report.*[4] G. Gale's *Upper Mississippi* (Chicago, 1867) gives us a condensed summary of the tribes of that region, and Miss Fletcher's *Report* will help us for all this territory. Use can be also made of Caleb Atwater's *Indians of the Northwest, or a Tour to Prairie du Chien* (Columbus, 1850). Dr. John G. Shea and others have used the *Collections of the Wisconsin Historical Society* to make known their studies of the tribes of that State.[5] One of the most readable studies of the Indians in the neighborhood of Lake Superior is John G. Kohl's *Kitchi-Gami* (1860). The authorities on the Black Hawk war throw light on the Sac and Fox tribes.[6] Pilling's *Bibliography of the Siouan Languages* (1887) affords the readiest key to the mass of books about the Sioux or Dacotah stocks from the time of Hennepin and the early adventurers in the Missouri Valley. The travellers Carver and Catlin are of importance here. Mrs. Eastman's *Dacotah, or life and legends of the Sioux* (1849) is an excellent book that has not yet lost its value; and the same can be said of Francis Parkman's *California and the Oregon Trail* (N. Y., 1849), which shows that historian's earliest experience of the wild camp life. Miss Alice C. Fletcher is the latest investigator of their present life.[7] Of the Crows we have some occasional accounts like Mrs. Margaret J. Carrington's *Absaraka*.[8] On the Modocs we have J. Miller's *Life among the Modocs* (London, 1873). J. O. Dorsey has given us a paper on the Omaha sociology in the *Third Rept. Bureau of Ethnology* (p. 205); and we may add to this some account in the *Transactions* (vol. i.) of the Nebraska State Hist. Society, and a tract by Miss Fletcher on the *Omaha tribe of Indians in Nebraska* (Washington, 1885). The Pawnees have been described by J. B. Dunbar in the *Mag. Amer. Hist.* (vols. iv., v., viii., ix.) The Ojibways have had two native historians, — Geo. Copway's *Traditional Hist. of the Ojibway Nation* (London, 1850), and Peter Jones' *Hist. of the Ojibway Indians, with special reference to their conversion to Christianity* (London, 1861). The *Minnesota Hist. Soc. Collections* (vol. v.) contain other historical accounts by Wm. W. Warren and by Edw. D. Neill, — the latter touching their connection with the fur-traders. Miss Fletcher's *Report* (1888) will supplement all these accounts of the aborigines of this region.

Our best knowledge of the southwestern Indians, the Apaches, Navajos, Utes, Comanches, and the rest, comes from such government observers as Emory in his *Military Reconnaissance;* Marcy's *Exploration of the Red River in 1852;* J. H. Simpson in his *Expedition into the Navajo Country* (1856); and E. H. Ruffner's *Reconnoissance in the Ute Country* (1874). The fullest references are given in Bancroft's *Native Races*,[9] with a map.

We may still find in Bancroft's *Native Races* (i. ch. 2, 3) the best summarized statement with references on the tribes of the upper Pacific coast, and follow the development of our knowledge in the narratives of the early explorers of that coast by water, in the account of Lewis and Clark and other overland travels, and in such tales of adventures as the *Journal kept at Nootka Sound by John R. Jewitt*, which has had various forms.[10]

The earliest of the better studied accounts of

[1] *Hist. Writings*, 1887.

[2] *Fergus Hist. Series, No. 27* (1884). Cf. Hough's map of the tribal districts of Indiana in his *Rept. on the Geology and Nat. Hist. of Indiana* (1882).

[3] See Vol. IV. 298.

[4] Cf. *Hist. Mag.*, Sept., 1861; and Peter D. Clarke's *Origin and Traditional Hist. of the Wyandotts* (Toronto, 1870). Clarke is a native Indian writer.

[5] Cf. I. A. Lapham on the *Indians of Wisconsin* (Milwaukee, 1879); and E. Jacker on the missions in *Am. Cath. Quart.*, i. 404; also Miss Fletcher's *Report*, ch. 21.

[6] Vol. VII.

[7] Cf. her *Report* (1888), ch. 10, and her *Indian ceremonies* (Salem, Mass., 1884), taken from the xvi. *Report of the Peabody Museum of Amer. Archæology and Ethnology*, 1883, pp. 260–333, and containing: The white buffalo festival of the Uncpapas. — The elk mystery or festival. Ogallala Sioux. — The religious ceremony of the four winds or quarters, as observed by the Santee Sioux. — The shadow or ghost lodge: a ceremony of the Ogallala Sioux. — The "Wawan," or pipe dance of the Omahas.

The *Minnesota Hist. Soc. Collections* have much on the Dacotahs.

[8] *Ab-sa-ra-ka, home of the Crows, being the experience of an officer's wife on the plains, with outlines of the natural features of the land, tables of distances, maps* [etc.] (Philad., 1868).

[9] These may be supplemented by Letheman's account of the Navajos in the *Smithsonian Rept.*, 1855, p. 280; and books of adventures, like Ruxton's *Life in the Far West;* Pumpelly's *Across America and Asia;* H. C. Dorr in *Overland Monthly*, Apr., 1871 (also in Beach's *Indian Miscellany*); James Hobbs' *Wild life in the far West* (Hartford, 1875), — not to name others, and a large mass of periodical literature to be reached for the English portion through *Poole's Index*. Cf. Miss Fletcher's *Report* (1888).

[10] *A Journal, kept at Nootka Sound, by John R. Jewitt, one of the surviving crew of the ship Boston, of*

these northwestern tribes was that of Horatio Hale in the volume (vi.) on ethnography, of the Wilkes' *United States Exploring Expedition* (Philad., 1846), and the same philologist's paper in the *Amer. Ethnological Society's Transactions* (vol. ii.). Recent scientific results are found in *The North-West Coast of America, being Results of Recent Ethnological Researches, from the Collections of the Royal Museums at Berlin, published by the Directors of the Ethnological Department, by Herr E. Krause, and partly by Dr. Grunwedel, translated from the German, the Historical and Descriptive Text by Dr. Reiss* (New York, 1886), and in the first volume of the *Contributions to North Amer. Ethnology* (Powell's Survey), in papers by George Gibbs on the tribes of Washington and Oregon, and by W. H. Dall on those of Alaska.[1]

For the tribes of California, Bancroft's first volume is still the useful general account; but the Federal government have published several contributions of scientific importance: that of Stephen Powers in the *Contributions to No. Amer Ethnology* (vol. iii., 1877);[2] the ethnological volume (vii.) of *Wheeler's Survey*, edited by Putnam; and papers in the *Smithsonian Reports*, 1863–64, and in Miss Fletcher's *Report*, 1888.[3]

This survey would not be complete without some indication of the topical variety in the consideration of the native peoples, but we have space only to mention the kinds of special treatment, shown in accounts of their government and society, their intellectual character, and of some of their customs and amusements.[4] Their industries, their linguistics, and their myths have been considered with wider relations in the appendixes of the present volume.

George E. Ellis.

Justin Winsor

Boston, John Salter, commander, who was massacred on 22d of March, 1803. Interspersed with some account of the natives, their manners and customs (Boston, 1807). Another account has been published with the title, "A narrative of the adventures and sufferings of J. R. Jewitt," compiled from Jewitt's "Oral relations," by Richard Alsop; and another alteration and abridgment by S. G. Goodrich has been published with the title, "The captive of Nootka." Cf. Sabin, Pilling, Field, etc. Cf. also *Hist. Mag.*, Mar., 1863. The French half-breeds of the Northwest are described by V. Havard in the *Smithsonian Rept.*, 1879.

[1] Dall's *Alaska and its Resources* (Boston, 1870), with its list of books, is of use in this particular field. Cf. also Miss Fletcher's *Report* (1888), ch. 19 and 20.

[2] His map is reproduced in Petermann's *Geog. Mittheilungen*, xxv. pl. 13.

[3] The periodical literature can be reached through *Poole's Index;* particularly to be mentioned, however, are the *Atlantic Monthly*, Apr., 1875; by J. R. Browne in *Harper's Mag.*, Aug., 1861, repeated in Beach's *Ind. Miscellany*. For the missionary aspects see such books as Geronimo Boscana's *Chinigchinich; a historical account of the origin, customs, and traditions of the Indians at the missionary establishment of St. Juan Capistrano, Alta California; called the Acagchemem nation. Translated from the original Spanish manuscript, by one who was many years a resident of Alta California* [Alfred Robinson] (N. Y., 1846), which is included in Robinson's *Life in California* (N. Y., 1846); and C. C. Painter's *Visit to the mission Indians of southern California, and other western tribes* (Philadelphia, 1886).

[4] See, for instance: Maj. Powell on tribal society in the *Third Rept. Bur. of Ethnology*. On Totemism, see the *Fourth Rept.*, p. 165, and J. G. Frazier in his *Totemism* (Edinburgh, 1887). Lucien Carr on the social and political condition of women among the Huron-Iroquois tribes, in *Peabody Mus. Rept.*, xvi. 207. J. M. Browne on Indian medicine in the *Atlantic*, July, 1866, reprinted in Beach's *Indian Miscellany*. J. M. Lemoine on their mortuary rites in *Proc. Roy. Soc. Canada*, ii. 85, and H. C. Yarrow on their mortuary customs in the *First Rept. Bur. Ethnol.*, p. 87, and on their mummifications in *Ibid.* p. 130. Andrew McFarland Davis on Indian games in the *Bulletin, Essex Institute*, vols. xvii., xviii., and separately. On their intellectual and literary capacity, John Reade in the *Proc. Roy. Soc. of Canada* (ii. sect. 2d, p. 17); Edward Jacker in *Amer. Catholic Quarterly* (ii. 304; iii. 255); Brinton's *Lenape and their legends;* W. G. Simms' *Views and Reviews.*

CHAPTER VI.

THE PREHISTORIC ARCHÆOLOGY OF NORTH AMERICA.

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BY the discovery of America a new continent was brought to light, inhabited by many distinct tribes, differing in language and in customs, but strikingly alike in physical appearance. All that can be learned in regard to their condition, and that of their ancestors, prior to the coming of Columbus, falls within the domain of the prehistoric archæology of America. This recent science of Prehistoric Archæology deals mainly with facts, not surmises. In studying the past of forgotten races, "hid from the world in the low-delved tomb," her chief agent is the spade, not the pen. Her leading principles, the lamps by which her path is guided, are superposition, association, and style. Does this new science teach us that the tribes found in possession of the soil were the descendants of its original occupants, or does she rather furnish reasons for inferring that these had been preceded by some extinct race or races? The first question, therefore, that presents itself to us relates to the antiquity of man upon this continent; and in respect to this the progress of archæological investigation has brought about a marked change of opinion. Modern speculation, based upon recent discoveries, inclines to favor the view that this continent was inhabited at least as early as in the later portion of the quaternary or pleistocene period. Whether this primitive people was autochthonous or not, is a problem that probably will never be solved; but it is now generally held that this earliest population was intruded upon by other races, coming either from Asia or from the Pacific Islands, from whom were descended the various tribes which have occupied the soil down to the present time.

The writer believes also that the majority of American archæologists now sees no sufficient reason for supposing that any mysterious, superior race has ever lived in any portion of our continent. They find no archæological evidence proving that at the time of its discovery any tribe had reached a stage of culture that can properly be called civilization. Even if we accept the exaggerated statements of the Spanish conquerors, the most intelligent and advanced peoples found here were only semi-barbarians, in

the stage of transition from the stone to the bronze age, possessing no written language, or what can properly be styled an alphabet, and not yet having even learned the use of beasts of burden.

By a large and growing school of archæologists, moreover, it is maintained that all the various tribes upon this continent, notwithstanding their different degrees of advancement, were living under substantially similar institutions; and that even the different forms of house construction practised by them were only stages in the development of the same general conceptions. Without attempting to dogmatize about such difficult problems, the object of this chapter is to set forth concisely such views as recommend themselves to the writer's judgment. He is profoundly conscious of the limitations of his knowledge, and fully aware that his opinions will be at variance with those of other competent and learned investigators. *Non nostrum tantas componere lites.*

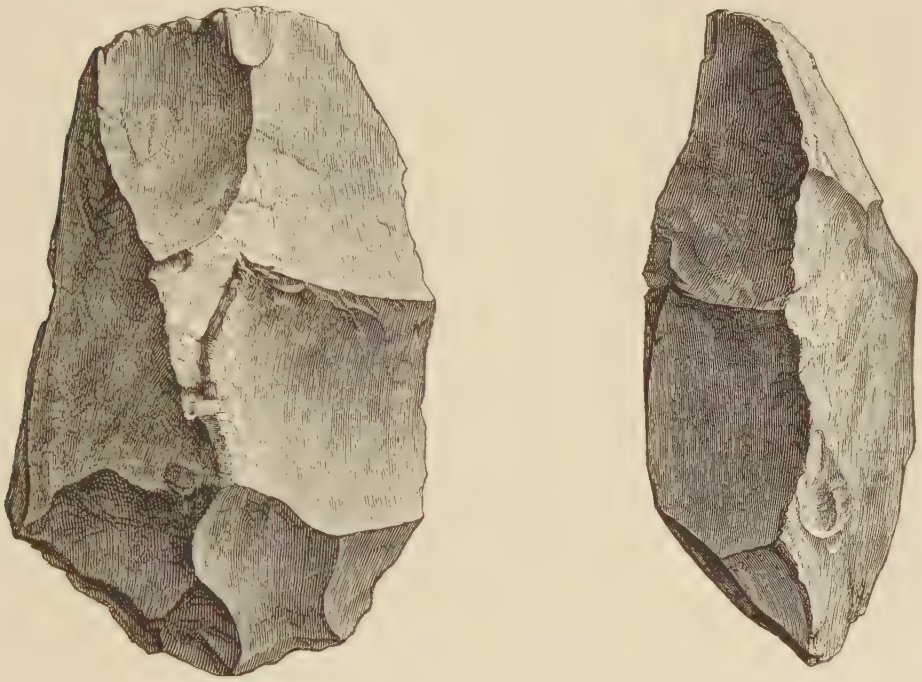
The controversy in regard to the antiquity of man in the old world may be regarded as substantially settled. Scarcely any one now denies that man was in existence there during the close of the quaternary or pleistocene period; but there is a great difference of opinion as to the sufficiency of the evidence thus far brought forward to prove that he had made his appearance in Europe in the previous tertiary period, or even in the earlier part of the quaternary. What is the present state of opinion in regard to the correlative question about the antiquity of man in America? Less than ten years ago the latest treatise published in this country, in which this subject came under discussion, met the question with the sweeping reply that "no truly scientific proof of man's great antiquity in America exists."[1] But we think if the author of that thorough and "truly scientific" work were living now his belief would be different. After a careful consideration of all the former evidence that had been adduced in proof of man's early existence upon this continent, none of which seemed to him conclusive, he goes on to state that "Dr. C. C. Abbott has unquestionably discovered many palæolithic implements in the glacial drift in the valley of the Delaware River, near Trenton, New Jersey."[2] Now a single discovery of this character, if it were unquestionable, or incapable of any other explanation, would be sufficient to prove that man existed upon this continent in quaternary times. The establishment, therefore, of the antiquity of man in America, according to this latest authority, seems to rest mainly upon the fact of the discovery by Dr. Abbott of palæolithic implements in the valley of the Delaware. To quote the language of an eminent European man of science, "This gentleman appears to stand in a somewhat similar relation to this great question in America as did Boucher de Perthes in Europe."[3] The opinion of the majority of American geologists upon this point is clearly indicated in a very recent article by Mr. W. J. McGee, of

[1] *The North Americans of Antiquity*, by John T. Short, p. 130.

[2] *Ibid.* p. 127.

[3] *The Antiquity of Man in America*, by Alfred R. Wallace in *Nineteenth Century* (November, 1887), vol. xxii. p. 673.

the U. S. Geological Survey: "But it is in the aqueo-glacial gravels of the Delaware River, at Trenton, which were laid down contemporaneously with the terminal moraine one hundred miles further northward, and which have been so thoroughly studied by Abbott, that the most conclusive proof of the existence of glacial man is found."[1] It will accordingly be necessary to give in considerable detail an account of the discovery of palæolithic implements by Dr. Abbott in the Delaware valley, and of its confirmation by different investigators, as well as of such other discoveries in different parts of our country as tend to substantiate the conclusions that have been drawn from them by archæologists.



PALÆOLITHIC IMPLEMENT FROM THE TRENTON GRAVELS.*

By the term palæolithic implements we are to understand certain rude stone objects, of varying size, roughly fashioned into shape by a process of chipping away fragments from a larger mass so as to produce cutting edges, with convex sides, massive, and suited to be held at one end, and usually pointed at the other. These have never afterwards been subjected to any smoothing or polishing process by rubbing them against another stone. But it is only when such rude tools have been found buried in beds of gravel or other deposits, which have been laid down by great floods towards the close of what is known to geologists as the quaternary or pleistocene

[1] *Palæolithic Man in America*, in *Popular Science Monthly* (November, 1888), p. 23.

* Side and edge view, of natural size. From the *Peabody Museum Reports*, vol. ii. p. 33.

period, that they can be regarded as really palæolithic.[1] At that epoch which immediately preceded the present period, certain rivers flowed with a volume of water much greater than now, owing to the melting of the thick ice-cap once covering large portions of the northern hemisphere, which was accompanied by a climate of great humidity. Vast quantities of gravels were washed down from the débris of the great terminal moraine of this ice-sheet, and were accumulated in beds of great thickness, extending in some instances as high as two hundred feet up the slopes of the river valleys. In such deposits, side by side with the rude products of human industry we have thus described, and deposited by the same natural forces, are found the fossil remains of several species of animals, which have subsequently either become extinct, like the mammoth and the tichorhine rhinoceros, or, driven southwards by the encroaching ice, have since its disappearance migrated to arctic regions, like the musk-sheep and the reindeer, or to the higher Alpine slopes, like the marmot. Such a discovery establishes the fact that man must have been living as the contemporary of these extinct animals, and this is the only proof of his antiquity that is at present universally accepted.

There has been much discussion among geologists in regard to both the duration and the conditions of the glacial period, but it is now the settled opinion that there have been two distinct times of glacial action, separated by a long interval of warmer climate, as is proved by the occurrence of intercalated fossiliferous beds; this was followed by the final retreat of the glacier.[2] The great terminal moraine stretching across the United States from Cape Cod to Dakota, and thence northward to the foot of the Rocky Mountains, marks the limit of the ice invasion in the second glacial epoch. South of this, extending in its farthest boundary as low as the 38th degree of latitude, is a deposit which thins out as we go west and northwest, and which is called the drift-area. The drift graduates into a peculiar mud deposit, for which the name of "loess" has been adopted from the geologists of Europe, by whom it was given to a thick alluvial stratum of fine sand and loam, of glacial origin. This attenuated drift represents the first glacial invasion. From Massachusetts as far as northern New Jersey, and in some other places, the deposits of the two epochs seem to coalesce.[3]

[1] Sometimes the gravels in which such implements were originally deposited have disappeared through denudation or other natural causes, leaving the implements on the surface. But the outside of such specimens always shows traces of decomposition, indicating their high antiquity. Other examples of implements of like shape, found on the surface in places where there has been no glacial drift, may be palæolithic, but their form is no sufficient proof of this, since they may equally well have been the work of the Indians, who are known to have fashioned similar objects.

[2] *The Great Ice Age and its relation to the antiquity of Man*, by James Geikie, p. 416.

[3] *An Inventory of our Glacial Drift*, by T. C. Chamberlin in the *Proceedings of American Association for Advancement of Science*, vol. xxxv. p. 196. A general map of this great moraine and others representing portions of it on a large scale will be found in his "Preliminary Paper on the terminal moraine of the second glacial period," in the *Third Annual Report of the U. S. Geological Survey*, by J. W. Powell (Washington, 1883).

The interval of time that separated the two glacial periods can be best imagined by considering the great erosions that have taken place in the valleys of the Missouri and of the upper Ohio. "Glacial river deposits of the earlier epoch form the capping of fragmentary terraces that stand 250 to 300 feet above the present rivers;" while those of the second epoch stretch down through a trough excavated to that depth by the river through these earlier deposits and the rock below.[1]

As to the probable time that has elapsed since the close of the glacial period, the tendency of recent speculation is to restrict the vast extent that was at first suggested for it to a period of from twenty thousand to thirty thousand years. The most conservative view maintains that it need not have been more than ten thousand years, or even less.[2] This lowest estimate, however, can only be regarded as fixing a minimum point, and an antiquity vastly greater than this must be assigned to man, as of necessity he must have been in existence long before the final events occurred in order to have left his implements buried in the beds of débris which they occasioned.

In April, 1873, Dr. C. C. Abbott, who was already well known as an investigator of the antiquities of the Indian races, which he believed had passed from "a palæolithic to a neolithic condition" while occupying the Atlantic seaboard, published an article on the "Occurrence of implements in the river-drift at Trenton, New Jersey."[3] In this he described and figured three rude implements, which he had found buried at a depth as great in one instance as sixteen feet in the gravels of a bluff overlooking the Delaware River. He argued that these must be of greater antiquity than relics found on the surface, from the fact of their occurring *in place* in undisturbed deposits; that they could not have reached such a depth by any natural means; and that they must be of human origin, and not accidental formations, because as many as three had been discovered of a like character. His conclusion is that they are "true drift implements, fashioned and used by a people far antedating the people who subsequently occupied this same territory."

After two years of further research he returned to the subject, publishing in the same journal, in June, 1876, an account of the discovery of seven similar objects near the same locality. Of these he said: "My studies of these palæolithic specimens and of their positions in the gravel-beds and overlying soil have led me to conclude that not long after the close of the last glacial epoch man appeared in the valley of the Delaware."[4]

Most of these specimens were deposited by Dr. Abbott in the Peabody Museum of American Archæology and Ethnology at Cambridge, Massachusetts; and the curator of that institution, Professor Frederick W.

[1] Chamberlin, *Proc. Amer. Assoc.*, *ubi sup.*, p. 199.

[2] *The place of Niagara Falls in geological history*, by G. K. Gilbert, of the U. S. Govt. Surv., in the *Proc. Amer. Assoc.*, *Ibid.* p. 223; *Geology of Minnesota* [final report], by N. H. Winchell and Warren Upham, vol. i. p. 337 (St. Paul, 1888).

[3] *The American Naturalist*, vol. vii. p. 204.

[4] *Ibid.* vol. x. p. 329.

Putnam, in September, 1876, visited the locality in company with Dr. Abbott. Together they succeeded in finding two examples *in place*. Having been commissioned to continue his investigations, Dr. Abbott presented to the trustees, in November of the same year, a detailed report *On the Discovery of Supposed Palæolithic Implements from the Glacial Drift in the Valley of the Delaware River, near Trenton, New Jersey.*[1] In this, three of the most characteristic specimens were figured, which had been submitted to Mr. M. E. Wadsworth of Cambridge, to determine their lithological character. He pronounced them to be made of argillite, and declared that the chipping upon them could not be attributed to any natural cause, and that the weathering of their surfaces indicated their very great antiquity. The question "how and when these implements came to be in the gravel" is discussed by Dr. Abbott at some length. He argued that the same forces which spread the beds of gravel over the wide area now covered carried them also; and he predicted that they will be met with wherever such gravels occur in other parts of the State. He specially dwells upon the circumstances that the implements were found in *undisturbed* portions of the freshly exposed surface of the bluff, and not in the mass of talus accumulated at its base, into which they might have fallen from the surface; and that they have been found at great depths, "varying from five to over twenty feet below the overlying soil." He also insisted upon the marked difference between their appearance and the materials of which they are fashioned and the customary relics of the Indians. The conditions under which the gravel-beds were accumulated are then studied in connection with a report upon them by Professor N. S. Shaler, which concludes, from the absence of stratification and of pebbles marked with glacial scratches, that they were "formed in the sea near the foot of the retreating ice-sheet, when the sub-glacial rivers were pouring out the vast quantities of water and waste that clearly were released during the breaking up of the great ice-time." This view regards the deposits as of glacial origin, and as laid down during that period, but considers that they were subsequently modified in their arrangement by the action of water. In such gravel-beds there have also been found rolled fragments of reindeer-horns, and skulls of the walrus, as well as the relics of man. Dr. Abbott accordingly drew the conclusion that "man dwelt at the foot of the glacier, or at least wandered over the open sea, during the accumulation of this mass of gravel;" that he was contemporary of these arctic animals; and that this early race was driven southward by the encroaching ice, leaving its rude implements behind. Thus it will be seen that Dr. Abbott no longer considers man in this country as belonging to post-glacial, but to interglacial times.

Continuing his investigations, in the following year Dr. Abbott gave a much more elaborate account of his work and its results, in which he

[1] *Tenth Annual Report of the Trustees of the Peabody Museum of American Archæology and Ethnology*, vol. ii. p. 30.

announced his discovery of some sixty additional specimens.[1] To the objection that had been raised, that these supposed implements might have been produced by the action of frost, he replied that a single fractured surface might have originated in that way or from an accidental blow; but when we find upon the same object from twenty to forty planes of cleavage, all equally weathered (which shows that the fragments were all detached at or about the same time), it is impossible not to recognize in this the result of intentional action. Four such implements are described and figured, of shapes much more specialized than those previously published, and resembling very closely objects which European archæologists style stone axes of "the Chellean type," whose artificial origin cannot be doubted.

THE TRENTON GRAVEL BLUFF.*

As some geologists were still inclined to insist upon the post-glacial character of the débris in which the implements were found, Dr. Abbott, admitting that the great terminal moraine of the northern ice-sheet does not approach nearer than forty miles to the bluff at Trenton, nevertheless insists that the character of the deposits there much more resembles a mass of material accumulated in the sea at the foot of the glacier than it does beds that have been subjected to the modifying arrangement of water. He finds an explanation of this condition of things in a prolongation of the glacier down the valley of the Delaware as far as Trenton, at a time when the lower portions of the State had suffered a considerable

[1] Second report on the palæolithic implements from the glacial drift, in the valley of the Delaware River, near Trenton, New Jersey, *Ibid.* p. 225.

* From a photograph kindly furnished by Professor F. W. Putnam, showing the Delaware and its bluff of gravel, where many of the rude implements have been found.

depression, and before the retreat of the ice-sheet. But besides the comparatively unmodified material of the bluff, in which the greater portion of the palæolithic implements has been found, there also occur limited areas of stratified drift, such as are to be seen in railway cuttings near Trenton, in which similar implements are also occasionally found. These, however, present a more worn appearance than the others. But it will be found that these tracts of clearly stratified material are so very limited in extent that they seem to imply some peculiar local condition of the glacier. This position is illustrated by certain remarkable effects once witnessed after a very severe rainfall, by which two palæolithic implements were brought into immediate contact with ordinary Indian relics such as are common on the surface. This leads to an examination of the question of the origin of this surface soil, and a discussion of the problem how true palæolithic implements sometimes occur in it. This soil is known to be a purely sedimentary deposit, consisting almost exclusively of sand, or of such finely comminuted gravels as would readily be transported by rapid currents of water. But imbedded in it and making a part of it are numerous huge boulders, too heavy to be moved by water. Dr. Abbott accounted for their presence from their having been dropped by ice-rafts, while the process of deposition of the soil was going on. The same sort of agency could not have put in place both the soil and the boulders contained in it, and the same force which transported the latter may equally well have brought along such implements as occur in the beds of clearly stratified origin. The wearing effect upon these of gravels swept along by post-glacial floods will account for that worn appearance which sometimes almost disguises their artificial origin.

In conclusion Dr. Abbott attempted to determine what was the early race which preceded the Indians in the occupation of this continent. From the peculiar nature and qualities of palæolithic implements he argues that they are adapted to the needs of a people "living in a country of vastly different character, and with a different fauna," from the densely wooded regions of the Atlantic sea-board, where the red man found his home. The physical conditions of the glacial times much more nearly resembled those now prevailing in the extreme north. Accordingly he finds the descendants of the early race in the Eskimos of North America, driven northwards after contact with the invading Indian race. In this he is following the opinion of Professor William Boyd Dawkins, who considers that people to be of the same blood as the palæolithic cave-dwellers of southern France, and that of Mr. Dall and Dr. Rink, who believed that they once occupied this continent as far south as New Jersey. In confirmation of this view he asserts that the Eskimos "until recently used stone implements of the rudest patterns." But unfortunately for this theory the implements of the Eskimos bear no greater resemblance to palæolithic implements than do those of any other people in the later stone age; and

subsequent discoveries of human crania in the Trenton gravels have led Dr. Abbott to question its soundness.[1]

These discoveries of Dr. Abbott are not liable to the imputation of possible errors of observation or record, as would be the case if they rested upon the testimony of a single person only. As has been already stated, in September, 1876, Professor Putnam was present at the finding *in place* of two palæolithic implements, and in all has taken five with his own hands from the gravel at various depths.[2] Mr. Lucien Carr also visited the locality in company with Professor J. D. Whitney, in September, 1878, and found several *in place*.[3] Since then Professors Shaler, Dawkins, Wright, Lewis, and others, including the writer, have all succeeded in finding specimens either in place or in the talus along the face of the bluff, from which they had washed out from freshly exposed surfaces of the gravel.[4] The whole number thus far discovered by Dr. Abbott amounts to about four hundred specimens.[5] Meanwhile, the problem of the conditions under which the Trenton gravels had been accumulated was made the subject of careful study by other competent geologists, besides Professor Shaler, to whose opinion reference has already been made. In October, 1877, the late Thomas Belt, F. G. S., visited the locality, and shortly afterwards published an account of Dr. Abbott's discoveries, illustrated by several geological sections of the gravel. His conclusion is, "that after the land-ice retired, or whilst it was retiring, and before the coast was submerged to such a depth as to permit the flotation of icebergs from the north, the upper pebble-beds containing the stone implements were formed."[6] The geologists of the New Jersey Survey had already recognized the distinction between the drift gravels of Trenton and the earlier yellow marine gravels which cover the lower part of the State. But it was the late Professor Henry Carvill Lewis, of Philadelphia, who first accurately described the character and limits of the Trenton gravels.[7] This he had carefully mapped before he was informed of Dr. Abbott's discoveries, and it has been found (with only one possible very recent exception) that the implements occur solely in these newer gravels of the glacial period.

Professor Lewis's matured conclusions in regard to the geological character and the age of the Trenton gravel cliff are thus expressed: "The presence of large boulders in the bluff at Trenton, and the extent and depth of the

[1] A complete account of Dr. Abbott's investigations will be found in his *Primitive Industry*, chap. 32 (Palæolithic Implements); *Tenth ann. rep. of Peabody Museum*, vol. ii. p. 30; *Eleventh Do., Ibid.* p. 225; *Proceedings of Boston Society of Natural History*, vol. xxi. p. 124; vol. xxiii. p. 424; *Proc. of Amer. Assoc. for Adv. of Science*, vol. xxxvii.

[2] *Proceedings of Boston Society of Natural History*, vol. xxi. p. 148.

[3] *Twelfth annual report of Peabody Museum*, vol. ii. p. 489.

[4] *Proceedings of Boston Soc. of Nat. Hist., Ibid.* p. 132.

[5] *Popular Science Monthly*, January, 1889, p. 411.

[6] *On the discovery of stone implements in the glacial drift of North America*, in the *Quart. Journ. of Science* (London, January, 1878), vol. xv. p. 68.

[7] *The Trenton gravel and its relation to the antiquity of man*, in the *Proceedings of the Academy of Natural Sciences of Philadelphia*, 1880, p. 296.

gravel at this place, have led to the supposition that there was here the extremity of a glacial moraine. Yet the absence of 'till' and of scratched boulders, the absence of glacial striæ upon the rocks of the valley, and the stratified character of the gravel, all point to water action alone as the agent of deposition. The depth of the gravel and the presence of the bluff at this point are explained by the peculiar position that Trenton occupies relatively to the river, . . . in a position where naturally the largest amount of a river gravel would be deposited, and where its best exposures would be exhibited. . . . Any drift material which the flooded river swept down its channel would here, upon meeting tide-water, be in great part deposited. Boulders which had been rolled down the inclined floor of the upper valley would here stop in their course, and all be heaped up with the coarser gravel in the more slowly flowing water, except such as cakes of floating ice could carry oceanward. . . . Having heaped up a mass of detritus in the old river channel as an obstruction at the mouth of the gorge, the river, so soon as its volume diminished, would immediately begin wearing away a new channel for itself down to ocean level. This would be readily accomplished through the loose material, and would be stopped only when rock was reached. . . . It has been thought that to account for the high bank at Trenton an elevation of the land must have occurred. . . . An increase in the volume of the river will explain all the facts. The accompanying diagram will render this more clear.

Section of bluff two miles south of Trenton, New Jersey. *a b*, TRENTON GRAVEL; Implements — *a*, fine gray sand (boulder); *b*, coarse sandy gravel; *c*, red gravel; *d*, yellow gravel (pre-glacial); *e*, plastic clay (Wealden); *f*, fine yellow sand (Hastings ?); *g*, gneiss; *h*, alluvial mud; *i*, Delaware River.*

"The Trenton gravel, now confined to the sandy flat borders of the river, corresponds to the 'intervale' of New England rivers, . . . and exhibits a topography peculiar to a true river gravel. Frequently instead of forming a flat plain it forms higher ground close to the present river channel than it does near its ancient bank. Moreover, not only does the ground thus slope downward on retreating from the river, but the boulders become smaller and less abundant. Both of these facts are in accordance with the facts of river deposits. In time of flood the rapidly flowing water in the main channel, bearing detritus, is checked by the more quiet waters at

* From a cut in *Primitive Industry*, p. 535.

the side of the river, and is forced to deposit its gravel and boulders as a kind of bank. . . . Having shown that the Trenton gravel is a true river gravel of comparatively recent age, it remains to point out the relation it bears to the glacial epoch. . . . Two hypotheses only can be applied to the Trenton gravel. It is either *post*-glacial, or it belongs to the very last portion of the glacial period. The view held by the late Thomas Belt can no longer be maintained. . . . He fails to recognize any distinction between the gravels. As we have seen, the Trenton gravel is truly post-glacial. It only remains to define more strictly the meaning of that term. There is evidence to support both of these hypotheses."[1]

After discussing them both at considerable length, he concludes as follows: "A second glacial period in Europe, known as the 'Reindeer Period,' has long been recognized. It appears to have followed that in which the clays were deposited and the terraces formed, and may therefore correspond with the period of the Trenton gravel. If there have been two glacial epochs in this country, the Trenton gravel cannot be earlier than the close of the later one. If there has been but one, traces of the glacier must have continued into comparatively recent times, or long after the period of submergence. The Trenton gravel, whether made by long-continued floods which followed a first or second glacial epoch, — whether separated from all true glacial action or the result of the glacier's final melting, — is truly a post-glacial deposit, but still a phenomenon of essentially glacial times, — times more nearly related to the Great Ice Age than to the present."

He then goes on to consider the bearings of the age of this gravel upon the question of the antiquity of man. "When we find that the Trenton gravel contains implements of human workmanship so placed with reference to it that it is evident that at or soon after the time of its deposition man had appeared on its borders, and when the question of the antiquity of man in America is thus before us, we are tempted to inquire still further into the age of the deposit under discussion. It has been clearly shown by several competent archæologists that the implements that have been found are a constituent part of the gravel, and not intrusive objects. It was of peculiar interest to find that it has been only within the limits of the Trenton gravel, precisely traced out by the writer, that Dr. Abbott, Professor F. W. Putnam, Mr. Lucien Carr, and others, have discovered these implements *in situ*. . . . At the localities on the Pennsylvania Railroad, where extensive exposures of these gravels have been made, the deposit is undoubtedly undisturbed. No implements could have come into this gravel except at a time when the river flowed upon it, and when they might have sunk through the loose and shifting material. All the evidence points to the conclusion that at the time of the Trenton gravel flood man . . . lived upon the banks of the ancient Delaware, and lost his stone implements in the shifting sands and gravel of the bed of that stream. . . . The actual age of the Trenton gravel, and the consequent date to which

[1] *Primitive Industry*, p. 533 *et seq.*

the antiquity of man on the Delaware should be assigned, is a question which geological data alone are insufficient to solve. The only clew, and that a most unsatisfactory one, is afforded by calculations based upon the amount of erosion. This, like all geological considerations, is relative rather than absolute, yet several calculations have been made, which, based either upon the rate of erosion of river channels or the rate of accumulation of sediment, have attempted to fix the date of the close of the glacial epoch. By assuming that the Trenton gravel was deposited immediately after the close of this epoch, an account of such calculations may be of interest. If the Trenton gravel is *post*-glacial in the widest acceptation of the term, a yet later date must be assigned to it."

After going carefully through them all, he concludes: "Thus we find that if any reliance is to be placed upon such calculations, even if we assume that the Trenton gravel is of glacial age, it is not necessary to make it more than ten thousand years old. The time necessary for the Delaware to cut through the gravel down to the rock is by no means great. When it is noted that the gravel cliff at Trenton was made by a side wearing away at a bank, and when it is remembered that the erosive power of the Delaware River was formerly greater than at present, it will be conceded that the presence of the cliff at Trenton will not necessarily infer its high antiquity; nor in the character of the gravel is there any evidence that the time of its deposition need have been long. It may be that, as investigations are carried further, it will result not so much in proving man of very great antiquity as in showing how much more recent than usually supposed was the final disappearance of the glacier."

Professor Lewis's studies of the great terminal moraine of the northern ice-sheet were still further prosecuted in conjunction with Professor George Frederick Wright, of Oberlin, Ohio, whose labors have been of the highest importance in shedding light upon the question of the antiquity of man in America.[1] Together they traced the southern boundary of the glacial region across the State of Pennsylvania, and subsequently Professor Wright has continued his researches through the States of Ohio, Indiana, and Kentucky, as far as the Mississippi River and even beyond. He has found that glacial floods similar to those of the Delaware valley have deposited similar beds of drift gravel in the valleys of all the southerly flowing rivers, and he has called attention to the importance of searching in them for palæolithic implements. As early as March, 1883, he predicted that traces of early man would be found in the extensive terraces and gravel deposits of the southern portion of Ohio.[2] This prediction was speedily fulfilled, and upon November 4, 1885, Professor Putnam reported to the Boston Society of Natural History that Dr. C. L. Metz, of Madisonville, Ohio, had found in the gravels of the valley of the Little Miami River, at that place,

[1] The bibliography of Professor Wright's publications upon this subject will be found in *Proc. Boston Soc. of Nat. Hist.*, vol. xxiii. p. 427.

[2] *Science*, vol. i. p. 271.

eight feet below the surface, a rude implement made of black flint, of about the same size and shape as one of the same material found by Dr. Abbott in the Trenton gravels. This was followed by the announcement from Dr. Metz that he had discovered another specimen (a chipped pebble) in the gravels at Loveland, in the same valley, at a depth of nearly thirty feet from the surface. Professor Wright has visited both localities, and given a detailed description of them, illustrated by a map. He finds that the deposit at Madisonville clearly belongs to the glacial-terrace epoch, and is underlain by "till," while in that at Loveland it is known that the bones of the mastodon have been discovered. He closes his account with these words: "In the light of the exposition just given, these implements will at once be recognized as among the most important archæological discoveries yet made in America, ranking on a par with those of Dr. Abbott at Trenton, New Jersey. They show that in Ohio, as well as on the Atlantic coast, man was an inhabitant before the close of the glacial period."[1] Further confirmation of these predictions was received at the meeting of the American Association for the Advancement of Science, at Cleveland, Ohio, in August, 1888, when Mr. Hilborne T. Cresson reported his discovery of a large flint implement in the glacial gravels of Jackson County, Indiana, as well as of two chipped implements made of argillite, which he had found *in place* at a depth of several feet in the ancient terrace of the Delaware River, in Claymont, Newcastle County, Delaware.[2]

This discovery of Mr. Cresson's has assumed a great geological importance, and it is thus reported by him: "Toward midday of July 13, 1887, while lying upon the edge of the railroad cut, sketching the boulder line, my eye chanced to notice a piece of steel-gray substance, strongly relieved in the sunlight against the red-colored gravel, just above where it joined the lower grayish-red portion. It seemed to me like argillite, and being firmly imbedded in the gravel was decidedly interesting. Descending the steep bank as rapidly as possible, the specimen was secured. . . . Upon examining my specimen I found that it was unquestionably a chipped implement. There is no doubt about its being firmly imbedded in the gravel, for the delay I made in extricating it with my pocket-knife nearly caused me the unpleasant position of being covered by several tons of gravel. . . . Having duly reported my find to Professor Putnam, I began, at his request, a thorough examination of the locality, and on May 25, 1888, the year following, discovered another implement four feet below the surface, at a place about one eighth of a mile from the first discovery. . . . The geological formation in which the implement was found seems to be a reddish gravel mixed with schist."[3]

Professor Wright thus comments upon these discoveries and their geo-

[1] *Proc. Boston Soc. of Nat. Hist.*, vol. xxiii. p. 435.

[2] *Proc. Amer. Assoc. for Adv. of Science*, vol. xxxvii.

[3] Early Man in the Delaware Valley, in the *Proc. Boston Soc. of Nat. Hist.*, vol. xxiv.

logical situation: "The discovery of palæolithic implements, as described by Mr. Cresson, near Claymont, Del., unfolds a new chapter in the history of man in America. It was my privilege in November last to visit the spot with him, and to spend a day examining the various features of the locality. . . . The cut in the Baltimore and Ohio railroad in which this implement was found is about one mile and a half west of the Delaware River, and about one hundred and fifty feet above it. The river is here quite broad. Indeed, it has ceased to be a river, and is already merging into Delaware Bay; the New Jersey shore being about three miles distant from the Delaware side. The ascent from the bay at Claymont to the locality under consideration is by three or four well-marked benches. These probably are not terraces in the strict sense of the word, but shelves marking different periods of erosion when the land stood at these several levels, but now thinly covered with old river deposits. Upon reaching the locality of Mr. Cresson's recent discovery, we find a well-marked superficial water deposit containing pebbles and small boulders up to two or three feet in diameter, and resting unconformably upon other deposits, different in character, and in some places directly upon the decomposed schists which characterize the locality. This is without question the Philadelphia Red Gravel and Brick Clay of Lewis. The implement submitted to us was found near the bottom of this upper deposit, and eight feet below the surface. . . . As Mr. Cresson was on the ground when the implement was uncovered, and took it out with his own hands, there would seem to be no reasonable doubt that it was originally a part of the deposit; for Mr. Cresson is no novice in these matters, but has had unusual opportunities, both in this country and in the old world, to study the localities where similar discoveries have heretofore been made. The absorbing question concerning the age of this deposit is therefore forced upon our attention as archæologists. . . . The determination of the age of these particular deposits at Claymont involves a discussion of the whole question of the Ice Age in North America, and especially that of the duality of the glacial epoch. At a meeting of this society on January 19, 1881, I discussed the age of the Trenton gravel, in which Dr. Abbott has found so many palæoliths, and was led also incidentally at the same time to discuss the relative age of what Professor Lewis called the Philadelphia Red Gravel. I had at that time recently made repeated trips to Trenton, and with Professor Lewis had been over considerable portions of the Delaware valley for the express purpose of determining these questions. The conclusions to which we — that is, Professor Lewis and myself — came were thus expressed in the paper above referred to (*Proc. Boston Soc. of Nat. Hist.*, vol. xxi. pp. 137–145), namely, that the Philadelphia Brick Clay and Red Gravel (which are essentially one formation) marked the period when the ice had its greatest extension, and when there was a considerable depression of the land in that vicinity; perhaps, however, less than a hundred feet in the neighborhood of the moraine, though increasing towards the northwest. During this period of greatest extension and depression,

the Philadelphia Red Gravel and Brick Clay were deposited by the ice-laden floods which annually poured down the valley in the summer seasons. As the ice retreated towards the headwaters of the valley, the period was marked also by a reëlevation of the land to about its present height, when the later deposits of gravel at Trenton took place. Dr. Abbott's discoveries at Trenton prove the presence of man on the continent at that stage of the glacial epoch. Mr. Cresson's discoveries prove the presence of man at a far earlier stage. How much earlier, will depend upon our interpretation of the general facts bearing on the question of the duality of the glacial epoch.

"Mr. McGee, of the United States Geological Survey, has recently published the results of extensive investigations carried on by him respecting the superficial deposits of the Atlantic coast. (See *Amer. Jour. of Science*, vol. xxxv., 1888.) He finds that on all the rivers south of the Delaware there are deposits corresponding in character to what Professor Lewis had denominated Philadelphia Red Gravel and Brick Clay. . . . From the extent to which this deposit is developed at Washington, in the District of Columbia, Mr. McGee prefers to designate it the Columbia formation. But the period is regarded by him as identical with that of the Philadelphia Red Gravel and Brick Clay, which Professor Lewis had attributed to the period of maximum glacial development on the Atlantic coast.

"It is observable that the boulders in this Columbia formation belong, so far as we know, in every case, to the valleys in which they are now found. . . . It is observable also that it is not necessary in any case to suppose that these deposits were the direct result of glacial ice. Mr. McGee does not suppose that glaciers extended down these valleys to any great distance. Indeed, so far as we are aware, there is no evidence of even local glaciers in the Alleghany Mountains south of Harrisburg. But it is easy to see that an incidental result of the glacial period was a great increase of ice and snow in the headwaters of all these streams, so as to add greatly to the extent of the deposits in which floating ice is concerned. And this Columbia formation is, as we understand it, supposed by Mr. McGee to be the result of this incidental effect of the glacial period in increasing the accumulations of snow and ice along the headwaters of all the streams that rise in the Alleghanies. In this we are probably agreed. But Mr. McGee differs from the interpretation of the facts given by Professor Lewis and myself, in that he postulates, largely, however, on the basis of facts outside of this region, two distinct glacial epochs, and attributes the Columbia formation to the first epoch, which he believes to be from three to ten times as remote as the period in which the Trenton gravels were deposited. If, therefore, Dr. Abbott's implements are, as from the lowest estimate would seem to be the case, from ten thousand to fifteen thousand years old, the implements discovered by Mr. Cresson in the Baltimore and Ohio cut at Claymont, which is certainly in Mr. McGee's Columbia formation, would be from thirty thousand to one hundred and fifty thousand years old.

"But as I review the evidence which has come to my knowledge since writing the paper in 1881, I do not yet see the necessity of making so complete a separation between the glacial epochs as Mr. McGee and others feel compelled to do. But, on the other hand, the unity of the epoch (with, however, a marked period of amelioration in climate accompanied by extensive recession of the ice, and followed by a subsequent re-advance over a portion of the territory) seems more and more evident. All the facts which Mr. McGee adduces from the eastern side of the Alleghanies comport, apparently, as readily with the idea of one glacial period as with that of two. . . . Until further examination of the district with these suggestions in view, or until a more specific statement of facts than we find in Mr. McGee's papers, it would therefore seem unnecessary to postulate a distinct glacial period to account for the Columbia formation. . . . But no matter which view prevails, whether that of two distinct glacial epochs, or of one prolonged epoch with a mild period intervening, the Columbia deposits at Claymont, in which these discoveries of Mr. Cresson have been made, long antedate (perhaps by many thousand years) the deposits at Trenton, N. J., at Loveland and Madison, Ohio, at Little Falls, Minn., . . . and at Medora, Ind. . . . . Those all belong to the later portion of the glacial period, while these at Claymont belong to the earlier portion of that period, if they are not to be classed, according to Mr. McGee, as belonging to an entirely distinct epoch."[1]

The objects discovered by both Dr. Metz and Mr. Cresson have been deposited in the Peabody Museum at Cambridge, and their artificial character cannot be disputed.

At nearly the same date at which Dr. Abbott published the account of his discoveries, Col. Charles C. Jones, of Augusta, Georgia, recorded the finding of "some rudely-chipped, triangular-shaped implements in Nacoochee valley under circumstances which seemingly assign to them very remote antiquity. In material, manner of construction, and in general appearance, so nearly do they resemble some of the rough, so-called flint hatchets belonging to the drift type, as described by M. Boucher de Perthes, that they might very readily be mistaken the one for the other."[2] They were met with in the course of mining operations, in which a cutting had been made through the soil and the underlying sands, gravels, and boulders down to the bed-rock. Resting upon this, at a depth of some nine feet from the surface, were the three implements described. But it is plain that this deposit can scarcely be regarded as a true glacial drift, since the great terminal moraine lies more than four hundred miles away to the north, and the region where it occurs does not fall within the drift area. It must be of local origin, and few geologists would be willing to admit the

[1] The Age of the Philadelphia Red Gravel, *Proc. Boston Soc. of Nat. Hist.*, vol. xxiv.

[2] *Antiquities of the Southern Indians*, p. 293. The preface of this volume is dated "New York, April 10, 1873." In an article in the *North American Review* for January, 1874 (vol. cxviii. p. 70), on "The Antiquity of the North American Indians," he traces that race back to palæolithic times.

existence of local glaciers in the Alleghanies so far to the south during the glacial period. Consequently these objects do not fall within our definition of true palæolithic implements.

The same thing may be said in a less degree of the implements discovered by C. M. Wallace, in 1876, in the gravels and clays of the valley of the James River.[1]

A different character attaches to certain objects discovered in 1877 by Professor N. H. Winchell, at Little Falls, Minnesota, in the valley of the Mississippi River.[2] These consisted mainly of pieces of chipped white quartz, perfectly sharp, although occurring in a water-worn deposit, and they were found to extend over quite a large area. Their artificial character has been vouched for by Professor Putnam, and among them were a few rude implements which are well represented in an accompanying plate. A geological section given in the report shows that they occur in the terrace some sixty feet above the bank of the river, and were found to extend about four feet below the surface. In the words of Professor Winchell: "The interest that centres in these chips . . . involves the question of the age of man and his work in the Mississippi Valley. . . . The chipping race . . . preceded the spreading of the material of the plain, and must have been preglacial, since the plain was spread out by that flood stage of the Mississippi River that existed during the prevalence of the ice-period, or resulted from the dissolution of the glacial winter. . . . The wonderful abundance of these chips indicates an astonishing amount of work done, as if there had been a great manufactory in the neighborhood, or an enormous lapse of time for its performance."

This discovery of Professor Winchell was followed up by researches prosecuted in 1879 in the vicinity of Little Falls by Miss F. E. Babbit, of that place.[3] She discovered a similar stratum of chipped quartz in the ancient terrace, of a mile or more in width, about forty rods to the east of the river, and elevated some twenty-five feet above it. This had been brought to light by the wearing of a wagon track, leading down a natural drainage channel, which had cut through the quartz stratum down to a level below it. The result of her prolonged investigations showed that "the stratum of quartz chips lay at a level some twelve or fifteen feet lower than the plane of the terrace top."[4] While the quartz chips discovered by Professor Winchell were contained in the upper surface of the terrace plain,

[1] *Flint implements from the stratified drift of the vicinity of Richmond, Va.*, in the *American Journal of Science* (3d series), vol. xi. p. 195; quoted in Dana's *Manual of Geology*, p. 578.

[2] *Sixth annual report of the Geological and Natural History Survey of Minnesota*, 1877, p. 54.

[3] Her paper on "Ancient quartz-workers and their quarries in Minnesota," read before the Minnesota Historical Society, February, 1880, was reprinted in *The American Antiquarian*, vol. iii. p. 18.

[4] *Vestiges of Glacial Man in Central Minnesota*, in the *Proc. Amer. Assoc. for Adv. of Science*, vol. xxxii. p. 385. A more extended account of her researches will be found under the same title in the *American Naturalist* for June and July, 1884 (vol. xviii. pp. 594 and 697). On p. 705 the writer has given at some length his opinion in regard to the artificial character of these quartz objects.

these were strictly confined to a lower level, and cannot be synchronous with them. They must be older "by at least the lapse of time required for the deposition of the twelve or fifteen feet of modified drift forming the upper part of the terrace plain above the quartz-bearing stratum."

This conclusion is abundantly confirmed by Mr. Warren Upham, of the U. S. Geological Survey, in his study of "The recession of the ice-sheet in Minnesota in its relation to the gravel deposits overlying the quartz implements found by Miss Babbit at Little Falls, Minnesota."[1] The great ice-sheet of the latest glacial epoch at its maximum extension pushed out vast lobes of ice, one of which crossed western and central Minnesota and extended into Iowa. Different stages of its retreat are marked by eleven distinct marginal moraines, and this deposit of modified drift at Little Falls Mr. Upham believes occurred in the interval between the formation of the eighth and the ninth. "It is," he says, "upon the till, or direct deposit of the ice, and forms a surface over which the ice never re-advanced." An examination of the terraces and plains of the Mississippi Valley from St. Paul to twenty-five miles above Little Falls shows them to be similar in composition and origin to the terraces of modified drift in the river valleys of New England. In his judgment, "the rude implements and fragments of quartz discovered at Little Falls were overspread by the glacial flood-plain of the Mississippi River, while most of the northern half of Minnesota was still covered by the ice. . . . It may be that the chief cause leading men to occupy this locality so soon after it was uncovered from the ice was their discovery of the quartz veins in the slate there, . . . affording suitable material for making sharp-edged stone implements of the best quality. Quartz veins are absent, or very rare and unsuitable for this, in all the rock outcrops of the south half of Minnesota, that had become uncovered from the ice, as well as of the whole Mississippi basin southward, and this was the first spot accessible whence quartz for implement-making could be obtained."

According to this view the upper deposit at Little Falls would appear to be more recent than those laid down by the immediate wasting of the great terminal moraine at Trenton and in Ohio; but the occupation of the spot by man upon the lower terrace may well have been at a much earlier time.

Many of the objects discovered by Miss Babbitt have been placed in the Peabody Museum, and as their artificial character has been questioned, the writer wishes to repeat his opinion, formed upon the study of numerous specimens that have been submitted to him, but not the same as those upon which Professor Putnam based his similar conclusions, that they are undoubtedly of human origin.

Implements of palæolithic form have been discovered in several other localities, but as none of them have been found *in place*, in undisturbed gravel-beds, either those which have been derived from the terminal

[1] *Proc. of Boston Soc. of Nat. Hist.*, vol. xxiii. p. 436.

moraine of the second extension of the great northern ice-sheet, or those which are included within the drift area, they cannot be considered as proved to be true palæolithic implements, although it is highly probable that many of them are such.[1]

We have now to consider the claim to high antiquity of objects which have been discovered in several places in certain deposits, equally regarded as of glacial origin, which occur in the central and western portions of the United States. These are the so-called "lacustrine deposits," which are believed to have had their origin from the former presence of vast lakes, now either extinct or represented by comparatively small bodies of water. The largest of such lakes occupied a great depression which once existed between the Rocky Mountains and the chain of the Sierra Nevada during the quaternary period. The existing lakes represent the lowest part of two basins, into which this depression was divided; of these, the western one, represented by certain smaller lakes, has received the name of Lake Lahontan. This never had any communication with the sea, and its deposits consequently register the greater or less amount of rain and snow during the period of its existence. To the eastern the name of Lake Bonneville has been given, and it is at present represented by the Great Salt Lake in Utah. This formerly had an outlet through the valley of the Columbia River. These lakes are believed to have been produced by the melting of local glaciers existing during the quaternary times in the above-named mountains; and similar consequences seem to have followed from the like presence of ancient glaciers in the Wahsatch and Uintah mountains, where no lake now exists.

In the ancient deposits of such an immense fresh-water lake, derived from the melting of glaciers in the last-mentioned mountains, which once existed in southern Wyoming, Professor Joseph Leidy first reported, in 1872, the discovery near Fort Bridger of "mingled implements of the rudest construction, together with a few of the highest finish. . . . Some of the specimens are as sharp and fresh in appearance as if they had been but recently broken from the parent block. Others are worn and have their sharpness removed, and are so deeply altered in color as to look exceedingly ancient."[2] The plates accompanying the report show that some of these objects are of palæolithic form, but as no further information is given in regard to the conditions under which they were discovered, we cannot pronounce them to be really palæolithic.

[1] In 1877, by Professor S. S. Haldeman on an island in the Susquehanna River, in Lancaster Co., Penn. (*Eleventh Rep. Peabody Mus.*, vol. ii. p. 255). In 1878, by A. F. Berlin in the Schuylkill Valley, at Reading, Penn. (*American Antiquarian*, vol. i. p. 10). In 1879, by Dr. W. J. Hoffman in the valley of the Potomac, near Washington (*American Naturalist*, vol. xiii. p. 108). Subsequently by others in the same vicinity, reported by S. V. Proudfit in *The American Anthropologist*, vol. i. p. 337. By David Dodge at Wakefield, Mass., and by Mr. Frazer at Marshfield, Mass. (*Proc. of Boston Soc. of Nat. Hist.*, vol. xxi. pp. 123 and 450). By the writer, in several localities in New England (*Ibid.* p. 382).

[2] *Sixth annual report of the U. S. Geological Survey of the Territories*, by F. V. Hayden (1873), p. 652.

In 1874, Dr. Samuel Aughey made known the existence in Nebraska of "hundreds of miles of similar lacustrine deposits, almost level or gently rolling."[1] To these the name of "loess" has also been given, as well as to the mud deposits derived from the northern drift. Aughey states that these beds are perfectly homogeneous throughout, and of almost uniform color, ranging in thickness from five to one hundred and fifty feet. Generally they lie above a true drift formation derived from glaciers in the Black Hills, and represent "the final retreat of the glaciers, and that era of depression of the surface of the State when the greater part of it constituted a great fresh-water lake, into which the Missouri, the Platte, and the Republican rivers poured their waters." The Missouri and its tributaries, flowing for more than one thousand miles through these deposits, gradually filled up this great lake with sediment. The rising of the land by degrees converted the lake-bottom into marshes, through which the rivers began to cut new channels, and to form the bluffs which now bound them. "The Missouri, during the closing centuries of the lacustrine age, must have been from five to thirty miles in breadth, forming a stream which for size and majesty rivalled the Amazon." Many remains of mastodons and elephants are found in this so-called loess, as well as those of the animals now living in that region, together with the fresh-water and land shells peculiar to it. In it Aughey has also discovered an arrow-point and a spear-head, of which he gives well-executed figures. Both are excellent examples of those well-chipped implements which are regarded as typical of the Neolithic age or the age of polished stone, and are absolutely different from the palæolithic implements of which we have hitherto spoken. They were both found in railroad cuttings on the Iowa side of the Missouri River, and within three miles of it. The first lay at a depth of fifteen feet below the top of the deposit. Of the second he says it was "twenty feet below the top of the loess, and at least six inches from the edge of the cut, so that it could not have slid into that place. . . . Thirteen inches above the point where it was found, and within three inches of being on a line with it, in undisturbed loess, there was a lumbar vertebra of an elephant."[2]

This intermingling in these deposits of the bones of extinct and living animals appears to have been brought about by the shifting of the beds of the vast rivers he has described, which have been flowing for ages through the slight and easily moved material. It seems to be analogous to what has taken place in recent times in the valley of the Mississippi and in its delta. The finding, therefore, of arrow-heads of recent Indian type, even *in place* under twenty feet of loess and below a fossil elephant-bone, cannot be considered as affording any stronger proof of the antiquity of man than the oft-cited instances of the discovery of basket-work and pottery underneath similar fossils at Petit Anse Island in Louisiana, or of pottery and mastodon-bones on the banks of the Ashley River in South Carolina. No such discovery can be considered of consequence as bearing upon the question of palæolithic man.

[1] *Ibid.* (1874), p. 247.

[2] *Ibid.* p. 254.

The late Thomas Belt wrote to Professor Putnam, in 1878, that he had discovered "a small human skull in an undisturbed loess in a railway cutting about two miles from Denver (Colorado). All the plains are covered with a drift deposit of granitic and quartzose pebbles overlaid by a sandy and calcareous loam closely resembling the diluvial clay and the loess of Europe. It was in the upper part of the drift series that I found the skull. Just the tip of it was visible in the cutting about three and one half feet below the surface."[1] Not long after this Mr. Belt died, and we are without further information in regard to the locality. It would seem, however, that the loess in which the skull occurred belongs to the latest in the lacustrine series, and consequently does not imply any very great antiquity for it.

In 1882 Mr. W. J. McGee, of the U. S. Geological Survey, obtained from the upper lacustral clays of the basin of the ancient Lake Lahontan, where they are exposed in the walls of Walker River Cañon, a spear-head, made of obsidian, beautifully chipped, and perfectly resembling those found

OBSIDIAN SPEAR-HEAD.*

on the surface throughout the southwest. "It was discovered projecting point outwards from a vertical scarp of lacustral clays twenty-five feet below the top of the section, at a locality where there were no signs of recent disturbance."[2] This is said to have been "associated in such a manner with the bones of an elephant or mastodon as to leave no doubt of their having been buried at approximately the same time." But we are also told that these lakes are of very recent date, and that they have "left the very latest of all the complete geological records to be observed in the Great Basin."[3] The fossil shells obtained from these deposits all belong to living species; while the mammalian remains, which have been found in only very limited numbers, and all, with a single exception, in the upper beds, "are the same as occur elsewhere in tertiary or quaternary strata." Mr. McGee says: "If the obsidian implement . . . was really *in situ* (as all appearances indicated), it must have been dropped in a shallow and

[1] *Eleventh Report of Peabody Museum*, p. 257.

[2] *Geological History of Lake Lahontan, a quaternary lake of northwestern Nevada*, by I. C. Russell, being *Monog.* No. xi. *U. S. Geol. Surv.* under J. W. Powell, p. 247 (Washington, 1885).

[3] *Ibid.* p. 269.

* Found in the Lahontan sediments, — from a cut in Russell's *Lake Lahontan*, monograph xi. of Powell's *U. S. Geological Survey*, p. 247.

quiet bay of the saline and alkaline Lake Lahontan, and gradually buried beneath its fine mechanical deposits and chemical precipitates."[1]

In Mr. Russell's opinion, this single implement, although supported by no other finds of a similar character, is sufficient to prove that "man inhabited this continent during the last great rise of the former lake." But if this last great rise occurred in recent times, the presence of the bones of tertiary mammals in the upper beds shows that great natural forces must have been in operation at that time to have washed these out of their original place of deposit. The principal organic remains found, we are told, are those of living shells, and the intermingling of these with the bones of tertiary mammals could scarcely have taken place in "shallow and quiet bays." To the writer this discovery seems rather to prove that an Indian spear-head was in some manner washed down and buried in the clays of the Walker River Cañon than that man was the contemporary there of the tertiary or quaternary mammalia. This fairly seems to be a case where, in the language of Dr. Brinton, "Archæology may at times correct Geology."[2]

It is almost paralleled by the discovery made by Mr. P. A. Scott, in Kansas, of a broken knife or lance-head, measuring in its present condition two inches and one eighth in length. Sir Daniel Wilson, who reports it, says: "The spot where the discovery was made is in the Blue Range of the Rocky Mountains, in an alluvial bottom, and distant several hundred feet from a small stream called Clear Creek. A shaft was sunk, passing through four feet of rich, black soil, and below this through upward of ten feet of gravel, reddish clay, and rounded quartz. Here the flint was found. . . . The actual object corresponds more to the small and slighter productions of the modern Indian tool-maker than to the rude and massive drift implement." But this most careful and conscientious observer goes on to remark, "Under any circumstances it would be rash to build up comprehensive theories on a solitary case like this."[3]

If the discovery by Mr. McGee of this spear-head be insisted upon as establishing that man inhabited this continent during the last great rise of the lake, it would be easier to believe that that event occurred in recent and not in quaternary times, than to admit that the distinction between palæolithic and neolithic implements, established by so many discoveries in this country and in Europe, is thereby utterly overthrown.

The only alternative left is to believe that neolithic man was the contemporary of the tertiary mammals. To this conclusion we are asked to come by Professor Josiah D. Whitney, on account of the discovery of the remains of man and of his works in the auriferous gravels of California. The famous "Calaveras skull" is figured upon another page of this volume,

[1] *Pop. Science Monthly*, November, 1888, p. 27.

[2] Article in the *Iconographic Encyclopædia*, on Prehistoric Archæology, by Daniel G. Brinton, vol. ii. p. 63 (Philadelphia, 1886).

[3] *Smithsonian Report*, 1862, p. 297, where it is figured; and repeated in his *Prehistoric Man*, vol. i. p. 45.

where the circumstances attending its discovery are briefly referred to.[1] It is astonishing to see how frail is the foundation upon which such a surprising superstructure has been raised, as it is found set forth in detail in the section entitled *Human remains and works of art of the gravel series*, in the third chapter of Professor Whitney's memoir on *The auriferous gravels of the Sierra Nevada of California*.[2] All is hearsay testimony, and entirely uncontrolled by any such careful scrutiny as marks the work of the British Association in the explorations carried on for fifteen years at Kent's Hole, near Torquay. There can be no question that human bones and human implements have often been discovered in these gravels, but according to the accounts as given these are mingled in them in inextricable confusion. What is the character of these objects of human workmanship? So far are they from being, as Professor Whitney describes them, "always the same kind of implements, . . . namely, the coarsest and the least finished which one would suppose could be made and still be implements." One account speaks of "a spear or lance head of obsidian, five inches long and one and a half broad, quite regularly formed." Others mention "spear and arrow heads made of obsidian;" or "certain discoidal stones from three to four inches in diameter, and about an inch and a half thick, concave on both sides, with perforated centre." Still another witness speaks of "a large stone bead, made perhaps of alabaster, about one and a half inches long and about one and one fourth inches in diameter, with a hole through it one fourth of an inch in size." We are also told of a "stone hatchet of a triangular shape, with a hole through it for a handle, near the middle. Its size was four inches across the edge, and length about six inches." So also oval stones with continuous "grooves cut around them," and "grooved oval disks," are more than once mentioned. We think these quotations will be sufficient to convince the archæologist that here is no question of palæolithic implements, but that we have to do simply with the common Indian objects found on the surface all over our country. Besides the rude cuts in Bancroft,[3] I know of only one example of these California discoveries which has been figured. This is the "beautiful relic" described by Mr. J. W. Foster, of which he says: "When we consider its symmetry of form . . . and the delicate drilling of the hole through a material so liable to fracture, we are free to say it affords an exhibition of the lapidary's skill superior to anything yet furnished by the Stone age of either continent."[4] Mr. Foster doubtfully suggests that this object was "used as a plummet for the purpose of determining the perpendicular to the horizon." It has been shown, however, by Mr. W. H. Henshaw, that among the Indians of Southern California similar objects have long been used by their medicine-men as "medicine or sorcery stones."[5] Whichever may

[1] See p. 385 of this volume.

[2] *Memoirs of Mus. of Comp. Zoölogy at Harv. College*, vol. vi. pp. 258–288 (Cambridge, 1880).

[3] The *Native Races of the Pacific States of North America*, by H. H. Bancroft, vol. iv. pp. 699–707.

[4] *Transactions* of the Chicago Academy of Sciences, vol. i. p. 232, pl. xxii, fig. 3.

[5] *The aboriginal relics called "sinkers" or "plummets"* in *Amer. Journal of Archæology*, vol. i. p. 105.

be held to be the true explanation of its use, either is more likely to be a characteristic of the Indian race than of primitive man.

But the objects whose presence in the gravels is most repeatedly spoken of are stone mortars, which Professor Whitney supposes were "used by the race inhabiting this region in prehistoric times . . . for providing food." One of these is stated to have been "found standing upright, and the pestle was in it, in its proper place, apparently just as it had been left by the owner." It was taken out of a shaft, according to the testimony, twelve feet underneath undisturbed strata. This was certainly a very marvellous thing to have happened if all the objects found in the gravels are supposed to have been brought there by the action of floods of water. But it is a very simple matter, if the supposition of Mr. Southall be correct, who thinks that "these mortars have been left in these positions by the ancient inhabitants in their search for *gold*."[1] The Spaniards found gold in abundance in Mexico, and the locality from which it came is believed by Mr. Southall to be indicated by a discovery made in 1849 by some gold-diggers at one of the mountain diggings called Murphy's, in the region in which Professor Whitney's discoveries have taken place. In examining a high barren district of mountain, they were surprised to come upon the abandoned site of an ancient mine. At the bottom of a shaft two hundred and ten feet deep a human skeleton was found, with an altar for worship and other evidences of ancient labor by the aborigines.[2] Mr. Southall believes that these mortars were used "for crushing the cemented gravel of the auriferous beds." Some corroboration is afforded for this suggestion by the fact that stone mortars of a like character are found in the ancient gold mines, worked by the early Egyptian monarchs, in the Gebel Allakee Mountains near the Red Sea, which were used in pulverizing the gold-bearing quartz.

As to the authenticity of the "Calaveras skull,"

"Great contest followed and much learned dust."

The probabilities seem in favor of its being a genuine human fossil, and the question recurs as to its character and the presumable age of the deposits from which it came. The latest geologist who has studied the locality, so far as the writer is aware, says of these deposits: "Even before visiting California I had suspected these old river gravels might be contemporaneous with the glacial epoch, and I still think this possible. This area was not glaciated, and these old gravels, hundreds of feet in thickness, may very well represent that great interval of time occupied in other regions by the glacial periods."[3] In discussing this question from the point of view of the character of the fossil animal remains contained in the gravels, we must

[1] *The Epoch of the Mammoth and the Apparition of Man upon the Earth*, by James C. Southall, p. 399 (Philadelphia, 1878).

[2] Schoolcraft's *Indian Tribes of the United States*, vol. i. p. 101 (Philadelphia, 1851).

[3] S. B. J. Skertchly in the *Journal Anthrop. Inst.*, vol. xvii. p. 335 (Jan. 10, 1888).

continually bear in mind what Professor E. D. Cope says of the *Mesozoic and Cænozoic of North America*: "The faunæ of these periods have not yet been discriminated. . . . Many questions of the exact contemporaneity of these different beds are as yet unsettled."[1] Professor Cope has previously pointed out how marked a difference there is between the quaternary fauna of North America and that of Europe; we have no Hippopotamus or Rhinoceros Tichorinus, and they no Megatherium, Megalonyx, and other species. Under the varying conditions of animal existence thus implied, to assail established ideas upon the sequence in man's development, or to maintain that he has had a long career on the Pacific slope of our continent before he had made his appearance in Western Europe, seems to the writer to be an attempt to explain "*ignotum per ignotius*."

What is really to be understood by the assumption that man existed in tertiary times? So profound a palæontologist as Professor William Boyd Dawkins thinks "it is impossible to believe that man should have been an exception to the law of change. In the Pliocene age we cannot expect to find traces of man upon the earth. The living placental mammals had only then begun to appear, and seeing that the higher animals have invariably appeared in the rocks according to their place in the zoölogical scale, fishes, amphibians, reptiles, placental mammals, it is hardly reasonable to suppose that the highest of all should then have been upon the earth."[2] When, therefore, some of the geologists of our country support Professor Whitney's claim that these discoveries of human fossils have actually proved man's existence in the Pliocene period, by arguments mainly based upon the effects of erosion and the immense periods of time which these imply, or favor his inference from the animal fossils contained in these deposits that there has been "a total change in the fauna and flora of the region," and that "the fauna of the gravel deposits is almost exclusively made up of extinct species," we may well insist, with Dawkins, that the human remains should not be regarded as standing upon a different basis from those of the horse, since both occur under similar conditions. Dr. Leidy reports the finding of remains of four different species of fossil *Equus*. But among them "we may note the skull of a mustang, identical with that of Mexico and California, which could not have been buried in the gravels of Sierra County before the time of the Spanish Conquest, when the living race of horses was introduced." Professor Jeffries Wyman says of the Calaveras skull: "Any conclusions based upon a single skull are liable to prove erroneous, unless we have sufficient grounds for the belief that such a skull is a representative one of the race to which it belongs. . . . We have no sufficient reason for assuming in the present instance that the skull is a representative one. . . . The skull presents no signs of having belonged to an inferior race. In its breadth it agrees with the other crania from California, except those of the Diggers, but surpasses them in the other particulars

[1] *The American Naturalist*, vol. xxi. p. 459 (1887).

[2] *Early Man in America*, in the *North American Review*, Oct., 1883, p. 340.

in which comparisons have been made."[1] As, therefore, what appear to be the skulls of a California Indian and that of a Mexican mustang have been found to occur in the same deposits, this circumstance, instead of proving that man was an inhabitant of pliocene America, would seem to the writer to imply either that these deposits are comparatively recent, or that the fossil bones found in them are so commingled that arguments based upon purely palæontological considerations can be regarded as entitled to very little weight.

But although some American palæontologists are inclined to argue that these deposits belong to the Pliocene, on account of the character of the vertebrate fossils found in them, it must not be forgotten that geologists generally prefer to refer them to the Pleistocene. They believe that even the superimposition of lava beds upon the gravels does not establish a very high antiquity for them, and question whether the time that has elapsed since the outflow of the lava, as measured by the amount of erosion that has taken place in the gravels, is to be regarded as much greater than can properly be assigned to the Pleistocene period elsewhere. Professor Whitney himself admits the difficulty of distinguishing whether "deposits have been accumulated in the place where we find them previous to the cessation of the period of volcanic activity. The gravels which have not been protected by a capping of basalt, or only thinly or not at all covered by erupted materials, may in some places have been overlain by recent deposits in such a way that the line between volcanic and post-volcanic cannot be distinctly drawn. . . . It must not unfrequently have happened that fossils have been washed out of the less coherent detrital beds belonging to the volcanic series, carried far from their original resting-place, and deposited in such a position that they seem to belong to the present epoch."[2] In one of the reports of Hayden's survey can be seen a plate representing "Modern Lake Deposits capped with Basalt."[3] There is sufficient ground for believing that the volcanic activity of the regions of the Sierras has continued down to very recent times, geologically speaking, and that there is no such great difference of age between the lava-cappings and the other beds as Professor Whitney supposes. Hayden thinks "the main portion of the volcanic material of the West has been thrown out at a comparatively modern date."[4] Undoubtedly the amount of erosion that has taken place in these river gravels implies a great lapse of time, but so do the other facts of physical geography which have been employed as chronometers by which to measure the time since the close of the quaternary period. To carry this erosion back to the tertiary times, and to assign man his place in the world then on that ground, in face of the arguments to the contrary drawn from archæology, palæontology, and geology, in view of the essential weakness of the testimony upon which the arguments in its favor are based,

[1] *The Auriferous Gravels*, etc., p. 273.
[2] *Ibid.* p. 242.
[3] *Sixth annual report of the U. S. Geol. Surv. of the Territories*, p. 29.
[4] *Ibid.* p. 44.

would seem to be a most hazardous assumption. It is only equalled by the statement that "the discoveries made in Europe, which have already obtained general credence, carry man close to the verge of the tertiary; if not, indeed, a little the other side of the line."[1] In the writer's opinion, this is the belief of only a small number of the most extreme evolutionists in Europe, while the great body of cautious and critical observers think that it has not been proved, and a few are willing to hold their judgment in suspense.

Professor Whitney's conclusions, however, are supported by Mr. Wallace in the article quoted at the beginning of this chapter, in his character as an evolutionist of the most advanced school. He says: "Believing that the whole bearing of the comparative anatomy of man and of the anthropoid apes, together with the absence of indications of any essential change in his structure during the quaternary period, lead to the conclusion that he *must* have existed, as man, in pliocene times, and that the intermediate forms connecting him with the higher apes probably lived during the early pliocene or the miocene period, it is urged that all such discoveries . . . are in themselves probable and such as we have a right to expect."[2] In such a frame of mind it is very easy for him to wave aside every objection raised by the archæologist to the character of the evidence brought forward to sustain the alleged discoveries. To the objection that the objects accompanying the human remains, for which such a great antiquity is claimed, are too similar to those of comparatively recent times, he has a ready answer: "The same may be said of the most ancient bow and spear-heads and those made by modern Indians. The use of the articles has in both cases been continuous, and the objects themselves are so necessary and so comparatively simple that there is no room for any great modification of form." The writer can only state here that no archæologist holds this opinion, and will refer for a detailed statement of his reasons for the contrary view to an article by him upon *The Bow and Arrow unknown to Palæolithic Man*.[3]

It is not easy to believe that so vast a difference in age can be attributed to the deposits upon the opposite sides of the chain of the Sierra Nevada, as would follow if we are to hold that the auriferous gravels belong to the tertiary, while the Lahontan deposits belong to the quaternary period. Far more reasonable does it seem to suppose that they both fall within the two divisions into which we have seen that the pleistocene has been divided. To the writer it appears, from what study he has made of the evidences alleged of man's existence in North America in early times, that proof is wanting that he made his appearance here earlier than in interglacial times. Dr. Abbott's discoveries seem to be worthy of all the importance which has been assigned to them, and the more so from the fact that they are in

[1] *The Auriferous Gravels*, etc., p. 281.

[2] *The Antiquity of Man in North America*, p. 679.

[3] *Proc. of Boston Soc. of Nat. Hist.*, vol. xxiii. p. 269.

accord with similar discoveries made in the Old World. The evidence adduced appears to be altogether too fragmentary and strained to warrant the conclusion that has been drawn that there is no proper correlation between the geological calendars of the two hemispheres.

Besides the numerous palæolithic implements which the Trenton gravels have yielded, there have been found in them three human crania, more or less complete, and portions of others.[1] Professor Putnam is inclined to the opinion that these may be veritable remains of the makers of the palæolithic implements. But it is difficult to conceive how such fragile objects as human skulls, in this period and at this locality, could have survived the destructive forces to which they must have been subjected. We must recollect that the bones of man are very seldom met with in the river gravels of the Old World, and such crania as are accepted as belonging to these deposits are dolichocephalic, and not, like these, brachycephalic.[2] The circumstances under which these three have been found are not reported with sufficient detail to enable us to account satisfactorily for their presence, nor can we admit that the fact that they "are not of the Delaware Indian type" affords any adequate criterion for our judgment. It is well established that "in America we find extreme brachycephaly, as well among the prehistoric as among the historic peoples from British America to Patagonia. At the same time, dolichocephaly is found, besides among the Eskimos, throughout the American Indian tribes from north to south; but it cannot be considered an American craniologic characteristic."[3] The various forms of skulls, moreover, are found to be so intermingled that they have been compared to "what might be looked for in a collection made from the potter's field of London or New York."[4] The problem is still further complicated by the widespread custom among the American tribes of altering the natural shape of the skull, sometimes by flattening it, sometimes by making it as round as possible.[5] Taking all these matters into consideration, we are compelled to regard craniology by itself as an insufficient guide.

We have now passed in review such evidences of man's early existence in North America as seem to be sufficiently substantiated by satisfactory proof, and have intentionally left out of consideration many former examples, which were accustomed to be cited before the science of prehistoric archæology had formulated her laws and established her general conclusions, as well as some more recent ones in which the evidence seems to be weak.

It only remains for the writer to express his own conclusions on the question. But first let him draw attention to the state of public opinion

[1] *Reports of Peabody Museum*, vol. iii. pp. 177, 408; iv. p. 35.

[2] *Early Man in Britain*, by W. Boyd Dawkins, p. 167.

[3] Dr. H. Ten Kate in *Science*, vol. xii. p. 228 (November 9, 1888).

[4] *Notes on the Crania of the N. E. Indians*, by Lucien Carr, p. 9 (*Anniversary Memoirs of Boston Soc. of Nat. Hist.*), 1880.

[5] *The Standard Natural History*, ed. by J. S. Kingsley, vol. vi. p. 143.

upon this subject as it is well expressed by an English writer: "The evidence for the existence of palæolithic man in America has been more fiercely contested even than in Europe, and the problem there is certainly more complicated. In Europe we can test the age of the remains not merely by their actual character, but also by the presence or absence of associated domestic animals. In America this test is absent, for there were virtually no domestic animals save the dog known to the pre-European inhabitants. We are therefore remitted to less direct evidence, namely, the provenance of the remains from beds of distinctly Pleistocene age, the fabric of the remains, and their association with animals, we have reason to believe, become extinct at the termination of that period."[1]

As an example of the spirit in which this "fierce contest" is waged in America, it will be sufficient to quote a few passages from a work by one of her most eminent men of science. He is speaking of "what seems to be a village site in Europe, of far greater antiquity than the Swiss lake-villages, and which may be a veritable 'Palæolithic' antediluvian town. It occurs at Solutré, near Mâcon, in eastern France, and has given rise to much discussion and controversy, as described by Messrs. De Ferry and Arcelin. . . . It destroys utterly the pretension that the men of the mammoth age were an inferior race, or ruder than their successors in the later stone age. . . . Lastly, many of the flint weapons of Solutré are of the palæolithic type characteristic of the river gravels, . . . while other implements and weapons are as well worked as those of the later stone age. Thus this singular deposit connects these two so-called ages, and fuses them into one."[2] The only comment the writer will make upon this statement is to say that he has twice visited the station at Solutré in company with M. Arcelin; that he has examined the collection of the late M. De Ferry at his house; and that he has before him the work which is supposed to be quoted from,[3] and he accordingly feels warranted in asserting with confidence that not one "flint implement of the palæolithic type characteristic of the river gravels" was ever found at Solutré. A note appended to Sir J. W. Dawson's rash statement adds: "Recent discoveries by M. Prunières, in caves at Beaumes Chaudes, seem to show that the older cave-men were in contact with more advanced tribes, as arrow-heads of the so-called neolithic type are found sticking in their bones, or associated with them. This would form another evidence of the little value to be attached to the distinction of the two ages of stone." The writer has already indicated his conviction that palæolithic man had not advanced sufficiently to invent the bow and arrow, and he wishes to add here that "arrow-heads of the so-called neolithic type" continued to be ordinary weapons employed during the Age of Bronze. He is only surprised that

[1] *The Mammoth and the Flood*, by Henry H. Howorth, p. 316 (London, 1887).

[2] *Fossil Men and their modern Representatives*, by J. W. Dawson, p. 106 *et seq.* (London, 1880).

[3] *Le Maconnais Préhistorique, . . . ouvrage posthume par H. De Ferry . . . avec notes et cet. par A. Arcelin*, Mâcon, 1870.

Dr. Prunières' discoveries are not quoted to prove that there is no distinction between the Age of Stone and the Age of Bronze.

Tested by the canons of prehistoric archæology, superposition, association, and style, in the judgment of the writer the fact of the existence of palæolithic man upon this continent, and the distinction between the rude palæolithic implement and the skilfully chipped obsidian objects which belong to what is called in Europe the Solutré type (a development of the later period in the early stone age, which cannot be overlooked in discussing the question of the antiquity of man), are truths as firmly established as any taught by modern science. The small minority who refuse to admit the last stated proposition are laggards in her march, and the few doubters who still question the genuineness of the palæolithic implements from the Trenton gravels are not entitled by their knowledge of the processes of manufacturing stone implements to have much weight attached to their opinions.

Regarding, then, the existence of palæolithic man as established by the finding of four hundred of his relics in the Delaware valley near Trenton, we have next to inquire whether there is evidence that in that region man made any progress towards the neolithic condition. For an answer to this question we have only to study the immense collection of objects gathered by Dr. Abbott, and now deposited in the Peabody Museum at Cambridge. This seems to warrant a conclusion exactly the opposite to Professor Whitney's, who states that "so far as California is concerned . . . the implements, tools, and works of art obtained are throughout in harmony with each other, all being the simplest and least artistic of which it is possible to conceive;" and his further statement that the "rude tools required but little more skill than is indicated by the chipped obsidian implements which are now, and have been from all time, in use among the aborigines of this continent." [1]

We have already seen that Professor Whitney's inferences about the relics of man occurring in the gravels of California are not at all justified by the facts relating to their discovery as reported by him; and as he offers no proof of his other assertion that "chipped obsidian implements have been *for all time* in use among the aborigines of this continent," we will venture to question its accuracy, even should he argue that his loose statement was intended to apply only to the aborigines of California. Consequently we are somewhat at a loss to understand why Dr. Abbott should feel called upon to refute his conclusions. He does this, however, successfully in his *Primitive Industry*, which is so largely based upon this great collection as to answer satisfactorily as a catalogue for it. In his own words, "the careful and systematic examination of the surface geology of New Jersey, of itself, it is believed, shows as abundant and unmistakable evidence of the transition from a true palæolithic to a neolithic condition as is exhibited in the traces of human handiwork found in the valley of any

[1] *The Auriferous Gravels*, etc., p. 287.

European river."[1] The arguments upon which this conclusion is based are drawn from each of the three canons of prehistoric archæology. A certain class of objects, superior in form and finish to the rude palæolithic implement, but decidedly inferior in every respect to the common types of Indian manufacture, with which collectors of such objects all over our country are perfectly familiar, is found occurring *principally* in deposits which occupy a position intermediate between the drift gravels, from which come the palæolithic implements, and the cultivable surface-soil, in which the former implements of the Indians are constantly brought to light by the ordinary operations of agriculture. In other instances, where these peculiar objects are found on or near the surface, not only do they not always occur there in association with the common Indian relics, but the material of which they are made, argillite, is the same as that out of which all the four hundred palæolithic implements are fabricated, with the exception of "two of quartz, one of quartzite, and one made from a black chert pebble."[2] This peculiar material occurs *in place* only a few miles north of Trenton, and as the ice-sheet withdrew it afforded "the first available mineral for effective implements other than pebbles, and these were largely covered with water, and not so readily obtained as at present; while the dry land of that day, the Columbia gravel, contained almost exclusively in this region small quartzite pebbles an inch or two in length."[3] The objects thus referred to exhibit only a few simple types. There is a rudely chipped spear-head, about three or four inches in length and from one to two in breadth, characterized by the same kind of decomposition of the surface which is seen upon the palæolithic implements. These occur in large numbers; "as many as a thousand have been found in an area of fifty acres. . . . A peculiarity . . . is their frequent occurrence . . . at a depth that suggests that they were lost when the face of the country was different from what it now is."[4] An implement is often found which was probably used as a knife, also very rudely chipped, and shaped somewhat like a spear-head, but never having a sharp point. The argillite, of which these are made, "is very hard and susceptible of being brought to a very sharp edge," but they are now all much decomposed upon the surface, and "are frequently brought to light through land-slides and the uprooting of trees from depths greater than it is usual to find jasper implements"[5] of the Indians.

The most common object of all, however, and one that occurs in very large numbers, is a slender argillite spear-point, about three inches in length, of nearly uniform size, and having little or no finish at the base. These are found at various depths up to five feet, principally in the allu-

[1] *Primitive Industry; or Illustrations of the Handiwork in Stone, Bone, and Clay of the Native Races of the Northern Atlantic Seaboard of America*, by Charles C. Abbott (Salem and Boston, 1881), p. 3.

[2] *Proc. Boston Soc. of Nat. Hist.*, vol. xxiii. p. 422.

[3] *Proc. of Am. Assoc. for Adv. of Science*, vol xxxvii.

[4] *Primitive Industry*, p. 253.

[5] *Ibid.* p. 262.

vial mud that has accumulated upon the meadows skirting the Delaware River, that are liable to be overflowed occasionally by the tide. From this circumstance, in addition to their shape, Dr. Abbott has conjectured that they were used as fish-spears.[1] "This deposit of mud is of a deep blue-black color, stiff in consistency, and almost wholly free from pebbles. It is composed of decomposed vegetable matter and a large percentage of very fine sand. It varies in depth from four to twenty feet, and rests on an old gravel of an origin antedating the river gravels that contain palæolithic implements. This mud is the geological formation next succeeding the palæolithic implement-bearing gravels. . . . A careful survey of this mud deposit, made at several distant points, leads to the conclusion that its formation dates from the exposure of the older gravel upon which it rests, through the gradual lessening of the bulk of the river, until it occupied only its present channel. . . . The indications are that the present volume and channel of the river have been essentially as they now are for a very long period; and the character of the deposit is such that its accumulation, if principally from decomposition of vegetable matter, must necessarily be very gradual. Since its accumulation to a depth sufficient to sustain tree growth, forests have grown, decayed, and been replaced by a growth of other timber. While so recent in origin that it seems scarcely to warrant the attention of the geologist, its years of growth are nevertheless to be numbered by centuries, and the traces of man found at all depths through it hint of a distant, shadowy past that is difficult to realize.

"The same objection, it may be, will be urged in this instance as in others where the comparative antiquity of man is based upon the depth at which stone implements are found, — that all these traces have been left upon the present surface of the ground, and subsequently have gotten, by unexplained means, to the various depths at which they now occur. It is, indeed, difficult to realize how some of these argillite spear-points have finally sunk through a compact peaty mass until they have reached the very base of the deposit. For those who urge that this sinking process explains the occurrence of implements at great depths, it remains to demonstrate that the people who made these argillite fish-spears either made only these, or were careful to take no other evidences of their handicraft with them when they wandered about these meadows; for certainly nothing else appears to have shared the fate of sinking deeply into the mud. In fact, the objection mentioned is met in this case, as in that of the palæolithic implements, that if these fish-spears are of the same age and origin as the ordinary Indian relics of the surface, then all alike should be found at great depths. This, we know, is not the case. Furthermore, the character of the deposit is not that of a loose mud or quicksand, but more like that of peat. It has a close texture, is tough and unyielding to a degree, and offers decided resistance to the sinking of comparatively light objects deeply into it. This is, of course, lessened when the deposit is subject to tidal overflows, and in

[1] *Primitive Industry*, p. 276 *et seq.*

the immediate vicinity of springs, which, bubbling through it, have caused a deposit of quicksand. While here an object sinks instantly out of sight, it is not here that we must judge of the character of the formation as a whole; and over the greater portion of its area we find no evidence of objects disappearing beneath the surface at a more rapid rate than the accumulation of decomposing vegetable matter would explain. Efforts have been made to determine the rate of progress of this growth of mould, but they are not wholly satisfactory; nevertheless the indications are sufficient to warrant our belief that the rate is so gradual as to invest with great archæological interest the characteristic traces of man found in these alluvial deposits."

Although these argillite spear-points seem *principally* to occur, as has been stated, in the alluvial mud along the banks of the Delaware, yet they are often found upon the surface, and associated with objects of Indian origin. This circumstance Dr. Abbott attempts to explain by the following considerations: "One marked result of the deforesting of the country and its constant cultivation has been to remove in great part the many inequalities of the surface and to dry up many of the smaller brooks. The hillocks have been worn down, the valleys filled up, and this of course has resulted in bringing to the surface, on the higher ground, the argillite implements which were at considerable depths, and in burying in the valleys the more recent jasper and quartz implements of Indian origin that were left upon the soil when lost or discarded by the red man. In the remnants of forests still remaining, where no such disturbance of the soil has occurred, the relative depths at which argillite and jasper respectively occur indicate the greater age of the former."[1]

He recurs to this subject in another place:[2] "The telling fact with reference to these argillite spear-points is that they are not, in the same sense as jasper arrow-heads, surface-found implements. They occur also, and even more abundantly, beneath the surface-soil. The celebrated Swedish naturalist, Peter Kalm, travelled throughout central and southern New Jersey in 1748–50, and in his description of the country remarks: 'We find great woods here, but when the trees in them have stood a hundred and fifty or a hundred and eighty years, they are either rotting within or losing their crown, or their wood becomes quite soft, or their roots are no longer able to draw in sufficient nourishment, or they die from some other cause. Therefore, when storms blow, which sometimes happens here, the trees are broken off either just above the roots, or in the middle, or at the summit. Several trees are likewise torn out with their roots by the power of the winds. . . . In this manner the old trees die away continually, and are succeeded by a younger generation. Those which are thrown down lie on the ground and putrefy, sooner or later, and by that means increase the *black soil*, into which the leaves are likewise finally changed, which drop abundantly in autumn, are blown about by the winds for some time, but are

[1] *Ibid.* p. 515, *note.*

[2] *Proc. of Am. Assoc. for Adv. of Science*, vol. xxxvii.

heaped up and lie on both sides of the trees which are fallen down. It requires several years before a tree is entirely reduced to dust.'[1] This quotation has a direct bearing on that which follows. It is clear that the surface-soil was forming during the occupancy of the country by the Indians. The entire area of the State was covered with a dense forest, which century after century was increasing the *black soil* to which Kalm refers. If, now, an opportunity occurs to examine a section of virgin soil and underlying strata, as occasionally happens on the bluffs facing the river, the limit in depth of this black soil may be approximately determined. An average derived from several such sections leads me to infer that the depth is not much over one foot, and the proportion of vegetable matter increases as the surface is approached. Of this depth of superficial soil probably not over one half has been derived from decomposition of vegetable growths. While no positive data are determinable in this matter beyond the naked fact that rotting trees increase the bulk of top-soil, one archæological fact that we do derive is that *flint implements* known as Indian relics belong to this superficial or 'black soil,' as Kalm terms it. Abundantly are they found on the surface; more sparingly are they found near the surface; more sparingly still the deeper we go; while at the base of this deposit of soil the *argillite* implements occur in greatest abundance. Here, then, we have the whole matter in a nut-shell. The two forms were dissociated until by the deforesting of the country and subsequent cultivation of the soil, except in a few instances, they became commingled."

A further argument in respect to the relation which argillite implements bear to those made of jasper and quartz is derived from the relative proportion in which they occur in localities which are believed to have been occupied first by the users of argillite, and subsequently by the Indians. "Of a series of twenty thousand objects gathered in Mercer County, New Jersey, forty-four hundred were of argillite, and of such rude forms and in such limited varieties as would be expected of the productions of a less cultured people than the Indian of the stone age. Of this series of forty-four hundred, two hundred and thirty-three are well-designed drills or perforators and scrapers; the others being spear-points, fishing-spears, arrow-heads, and knife-like implements."[2] This is supplemented by negative evidence drawn from "the character of the sites of arrow-makers' open-air workshops, or those spots whereon the professional chipper of flint pursued his calling. In the locality where I have pursued my studies several such sites have been discovered and carefully examined. In no one of these workshop sites has there been found any trace of argillite mingled with the flint-chips that form the characteristic feature of such spots. On the other hand, no similar sites have been discovered, to my knowledge, where argillite was used exclusively. The absence of this mineral cannot be explained on the ground that it was difficult to procure, for such is not the case. It con-

[1] Peter Kalm, *Travels into North America, translated by J. R. Forster* (London, 1770–71), v. ii. p. 17.
[2] *Primitive Industry*, p. 462.

stitutes, in fact, a considerable percentage of the pebbles and boulders of the drift from which the Indians gathered their jasper and quartz pebbles for working into implements and weapons. If the absence of argillite from such heaps of selected stones is explained by the assertion that the Indians had recognized the superiority of jasper, then the belief that argillite was used prior to jasper receives tacit assent. If, however, it was the earlier *Indians* who used argillite, and gradually discarded it for the various forms of flint, then we ought to find workshop sites older than the time of *flint*-chipping, and others where the two minerals are associated. This, as has been stated, has not been done." [1]

Professor Putnam has found a confirmation of these views of Dr. Abbott in the contents of a great shell-heap at Keyport, in New Jersey, investigated over thirty years ago by Rev. Samuel Lockwood, and now placed in the Peabody Museum at Cambridge. "As the shell-heap at Keyport, once covering a mile or more in length along a narrow strip bordered upon one side by the ocean and on the other by Raritan Bay, is entirely obliterated, it is of importance that the materials obtained from it are now in the museum for comparison with our very extensive collections from the shell-heaps of New England. The fact that at certain places on this narrow strip between the bay and the sea the prevailing implements were of argillite and of great antiquity has a peculiar significance in connection with those from Trenton, and again points to an intermediate period between the palæolithic and the late Indian occupation of New Jersey." [2]

To these various arguments the writer wishes to add the statement that to his personal knowledge argillite spear-points, and especially those of the fish-spear type, are occasionally found in other parts of our country besides New Jersey. In his own researches, which have been principally carried on upon the seacoast of New England, he has *never* found an example of them in the shell-heaps proper, which are universally recognized by archæologists as relics of the Indians. The few which he has found himself, or has obtained from others, have come from meadows by the side of rivers or ponds, where they might very well have been used as fish-spears.

A further confirmation of Dr. Abbott's opinions in regard to the descendants of palæolithic man is derived from certain discoveries made by Mr. Hilborne T. Cresson in the alluvial deposits at Naaman's Creek, in Delaware. These were first made known in November, 1887, by a letter to the editor of the American Antiquarian. "In 1870, a fisherman living in the village of Marcus Hook, Pennsylvania, gave me some spear and arrow heads flaked from a dense argillite, as well as other rude implements of a prehistoric people, which he had found on some extensive mud flats near the mouth of Naaman's Creek, a small tributary of the Delaware. The finder

[1] *Proc. of Amer. Assoc. for Adv. of Science*, vol. xxxvii.

[2] *Rep. of Peabody Museum*, vol. iv. p. 43.

stated that while fishing . . . he had noticed here and there the ends of logs or stakes protruding from the mud, and that they seemed to him to have been placed in rows. . . . A visit made a few days afterward to the place . . . disclosed the ends of much-decayed stakes or piles protruding here and there above the mud. . . . On my return from France in 1880 I again visited the spot. . . . While abroad I studied in spare moments many archæological collections, especially those from the Swiss Lake Dwellings, and visited the various lake stations of Switzerland. The rude dressings of the ends of the piles in some places were evidently made with blunt stone implements, and recalled those I had seen on the ends of the posts in the Delaware River marshes. Since 1880 I have quietly examined the remains, excavating what pile ends remained *in situ* (preserving a few that did not crumble to pieces), preserving careful notes of the dredging and excavations (at low tides), carried on principally by myself, aided at times by interested friends. The results so far seem to indicate that the ends of the piles imbedded in the mud, judging from the implements and other débris scattered around them, once supported shelters of early man that were erected a few feet above the water, — the upper portion of the piles having disappeared in the long lapse of time that must have ensued since they were placed there. (The flats are covered by four and one half feet of water on the flood tide; on the ebb the marsh is dry, and covered with slimy ooze several feet in depth, varying in different places.) Three different dwellings have been located, all that exist in the flats referred to, after a careful examination within the last four years of nearly every inch of ground carefully laid off and examined in sections. The implements found in two of 'the supposed river dwelling sites' are very rude in type, and generally made of dense argillite, not unlike the palæoliths found by my friend Dr. C. C. Abbott in the Trenton gravels. The character of the implements from the other or third supposed river dwelling on the Delaware marshes is better finished objects made of argillite."[1]

The greater portion of the objects obtained by Mr. Cresson has been placed in the Peabody Museum, to which he is at present attached as a special assistant; but he has also kindly sent to the writer a small illustrative collection from each site, for his study.

The writer would hesitate to draw the inference from this single discovery that the custom of living in pile-dwellings ever prevailed in North America, although there is evidence that such a practice was not unknown in South America. This is to be found in the account of the voyage of Alonso de Ojeda along the north coast of that country, in the year 1499, in which he was accompanied by Vespucius.[2] I will quote the language of Washington Irving: "Proceeding along the coast, he arrived at a vast, deep gulf resembling a tranquil lake, entering which he beheld on the eastern side a village whose construction struck him with surprise. It consisted of twenty large houses, shaped like bells, and built on piles driven

[1] Vol. ix. p. 363.

[2] See Vol. II. pp. 144 and 187.

into the bottom of the lake, which in this part was limpid and of but little depth. Each house was provided with a drawbridge, and with canoes by which the communication was carried on. From these resemblances to the Italian city, Ojeda gave to the bay the name of the Gulf of Venice, and it is called at the present day Venezuela, or Little Venice." [1] There is no inherent improbability that such a custom may have prevailed upon the shores of Delaware Bay, and for the same reason that has caused it to be followed elsewhere. "It has been stated that the natives living near Lake Maracaybo, in South America, erect pile dwellings over the lake, to which they resort in order to escape from the mosquitoes which infest the shore. Lord also mentions that the Indians of the Suman prairie, British Columbia, on the subsidence of the annual floods in May and June, build pile dwellings over a lake there, to which they retire to escape from the mosquitoes which at that period infest the prairie in dense clouds, but will not cross the water." [2]

But it would be safer, probably, to consider these discoveries of Mr. Cresson's as marking the site of ancient aboriginal fish-weirs, such as are described by Captain Ribault and other early explorers as made by the natives.[3] The writer agrees with Professor Putnam in thinking that "the fact that at only one station pottery occurs, and, also, that at this station the stone implements are largely of jasper and quartz, with few of argillite, while at the two other stations many rude stone implements are associated with chipped points of argillite, with few of jasper and other flint-like material, is of great interest." [4]

Still further confirmation of the progress of the palæolithic man in this region is afforded by discoveries made in a rock-shelter near the head-waters of Naaman's Creek, as early as 1866, for an account of which, and the preservation of the objects then found, we are also indebted to Mr. Cresson: "The remains of the Naaman's Creek rock-shelter luckily fell into hands that have preserved them. . . . To give a detailed account of *how* the rock-shelter was discovered would consume too much time. Let us rather consider briefly the . . . contents of the shelter's various layers. . . . Fortunately careful drawings of the shelter were made during its excavation between the years 1866 and 1867. . . . A glance shows the outcrop of the rock as it appeared before the excavations were begun in 1866. The trees show that the ground was then covered by a thick wood. . . . From the point that marks the innermost edge of the outcrop, overhanging the hollow, a perpendicular line dropped to the ground would measure five and one eighth feet, the height of the projection of the rock above the ground before the excavations were commenced.

"Twenty-two feet eight inches from the outcrop, measured from its inner face, there is still another outcrop. . . . This marks the opposite side of

[1] *Companions of Columbus*, p. 28.

[2] *Flint Chips, a Guide to Prehistoric Archæology*, by Edw. T. Stevens, p. 123.

[3] *Antiquities of the Southern Indians*, by C. C. Jones, p. 320.

[4] *Rep. of Peabody Museum*, vol. iv. p. 45.

the hollow. . . . It is evident how admirably the place was adapted to the wants of the early hunters of the Delaware valley, whether it be as a shelter, or as a place of defence against their enemies. . . . Let us look at the layers of earth that filled it, these being intermingled with rude implements, broken bones, and charcoal, indicating that man at times had resorted to the spot.

"Layer C [the lowest]. This was composed of schist, resting on the bed-rock of the shelter. A layer of aqueous gravel, of the same type as that underlying Philadelphia, rested on the decomposed schist. The greatest depth of the red gravel layer was four feet two and one fourth inches, measured from the layer of decomposed schist. Least depth of gravel observed, one foot three inches. . . .

"Layer A [next above]. This was a layer of grayish-white brick clay mixed with yellow clay, similar to that underlying Philadelphia, on top of which was a layer mixed with sand. . . . Stone implements were discovered in this layer. They were but few in number and very rude, exclusively of argillite, and palæolithic in type. Greatest depth of layer, two feet one and one half inches. No implements of bone were found. . . .

"Layer T [next above]. This was of reddish gravel, intermingled with decomposed schist, cinders, and broken bones of animals. Fragments of a human skull were found . . . in this layer. A fragment of a human rib was also preserved. The fragments of the skull are covered here and there by dendritic incrustations. Rude spears and implements of argillite were found in this layer. Depth of layer, thirteen to eighteen inches.

"Layer D [next above]. Composed of reddish-yellow clay. Depth, two feet three inches. No implements.

"Layer M [next above]. In this layer were numerous implements of argillite and some of bone, intermingled with rude implements of quartzite and jasper and fragments of rude pottery, with charcoal. Greatest depth, one foot one and one half inches. Least depth, three inches.

"Layer R [next above]. Yellow clay. Greatest depth, two feet one and one half inches; least depth, eight inches. No implements.

"Layer W [next above]. This contained chipped implements; those made of jasper and quartzite predominating over those of argillite. In the lowest part of this layer were fragments of rude pottery. In the upper portion of the layer were potsherds decidedly superior in decoration and technique to those from the lower portion. Geological composition of this layer, yellow clay loam. Greatest depth, three feet four inches. Least depth, two and one half inches.

"Layer L [top]. This consists of leaf mould seven inches thick, converted into swamp muck by decomposing action of water from springs. No implements. . . . No remains of extinct animals were found." [1]

Professor Putnam thus proceeded to comment upon these discoveries: "We have a series of objects, taken from the several layers of the shelter,

[1] "Early Man in the Delaware Valley," in the *Proc. Boston Soc. of Nat. Hist.*, vol. xxiv.

giving us a chronology of the utmost importance, as each period of occupation of the shelter was followed by a natural deposition, separating the different periods of occupation. The stone implements . . . are taken from the lowest layer, indicating the earliest period of occupation of the rock-shelter; and . . . they correspond in shape and rudeness of execution with those taken from the gravel-bed at Trenton; and like most of the latter they are all of argillite. The specimens from the second period are of argillite, and while many are chipped into slender points, they are still of very rude forms; and these in turn correspond with the argillite points found by Dr. Abbott deep down in the black soil, or resting upon the gravel, at Trenton. In the upper layers of the cave we observe . . . the gradual introduction of implements chipped from jasper and quartz, and corresponding in form with those found upon the surface throughout the valley. And as a further indication of this later development, it was only in the upper layers that pottery, bone implements, and ornaments were found; the three distinct periods of occupation of the Delaware valley are thus distinctly shown; and this cave-shelter is a perfect exemplification of the results which Dr. Abbott had obtained from a study of the specimens which he has collected upon the surface, deep in the black soil, and in the gravel, at Trenton."

From the accumulative force of these various lines of reasoning, the writer thinks that there is a strong probability that here, on the waters of the Delaware, man developed from the palæolithic to the neolithic stage of culture. But we cannot follow Dr. Abbott in his further conclusion (if, indeed, he still holds to it) that we are to seek the descendants of this primitive population in the Eskimos, driven north after contact with the Indians. We have failed to discover the slightest evidence to sustain this position. The hereditary enmity existing between the Eskimos and the Indians may be equally well explained upon the theory that the former are later comers to this continent, and are therefore hated by the Indian races as intruders. The two races are certainly markedly unlike.

In the absence of any evidence tending to show the development of the argillite-using people into the Indian races, with their perfected implements and weapons of the age of polished stone, it seems more reasonable to hold with Professor Dawkins that the earlier and ruder race perished before or were absorbed by a people furnished with a better equipment in the struggle for the "survival of the fittest." The palæolithic man of the river gravels of Trenton and his argillite-using posterity the writer believes to be completely extinct.[1]

It only remains for the writer to express his regret that he has been prevented from setting forth in detail, at the present time, the grounds upon which he has come to other conclusions which were briefly indicated at the beginning of this chapter. He can only repeat here his belief that the

[1] *Early Man in Britain*, p. 173.

so-called Indians, with their many divisions into numerous linguistic families, were later comers to our shores than the primitive population, whose development he has attempted to trace; that the so-called "moundbuilders" were the ancestors of tribes found in the occupation of the soil; and that the Pueblos and the Aztecs were only peoples relatively farther advanced than the others.

The writer further thinks that these are propositions capable, if not of being demonstrated, at least of being made to appear in a very high degree probable by means of authorities which will be found amply referred to in other chapters of this volume.

Henry W. Haynes

THE PROGRESS OF OPINION RESPECTING THE ORIGIN AND ANTIQUITY OF MAN IN AMERICA.

BY THE EDITOR.

THE literature respecting the origin and early condition of the American aborigines is very extensive; and, as a rule, especially in the earlier period, it is not characterized by much reserve in connecting races by historical analogies.[1] Few before Dr. Robertson, in discussing the problem, could say: "I have ventured to inquire without presuming to decide."

The question was one that allured many of the earlier Spanish writers like Herrera and Torquemada. Among the earlier English discussions is that of Wm. Bourne in his *Booke called the Treasure for Travellers* (London, 1578), where a section is given to "The Peopling of America." The most famous of the early discussions of the various theories was that of Gregorio Garciá, a missionary for twenty years in South America, who reviewed the question in his *Origen de los Indios de el Nuevo Mundo* (Valencia, 1607).[2] He goes over the supposed navigations of the Phœnicians, the identity of Peru with Solomon's Ophir, and the chances of African, Roman, and Jewish migrations, — only to reject them all, and to favor a coming of Tartars and Chinese. Clavigero thinks his evidences the merest conjectures. E. Brerewood, in his *Enquiries touching the diversity of languages and religions* (London, 1632, 1635), claimed a Tartar origin. In New England, where many were believers in the Jewish analogies, it is somewhat amusing to find not long after this the quizzical Thomas Morton, with what seems like mock gravity, finding the aboriginal source in "the scattered Trojans, after such time as Brutus departed from Latium."[3] The reader, however, is referred to other sections of the present volume for the literature bearing upon the distinct ethnical connections of the early American peoples.

The chief literary controversy over the question began in 1642, when Hugo Grotius published his *De Origine Gentium Americanarum Dissertatio* (Paris and Amsterdam, 1642).[4] He argued that all North

[1] Waitz, *Introd. to Anthropology*, Eng. trans., p. 255, points out the dangers of over-confidence in this research. Cf. also J. H. McCulloh's *Researches* (1829).

The best indications of the sources as respects the origin of the Americans can be found in Haven's *Archæology of the United States* (*Smithsonian Contributions*, viii., 1856); Bancroft's foot-notes to his *Nat. Races*, v. ch. 1; Short, ch. 3, on the diversity of opinions; Poole's *Index*, p. 637, and *Supplement*, p. 274. Cf. Drake's *Book of the Indians*, ch. 2.

Without anticipating the characterization and mention of the essential books later to be indicated, some miscellaneous references may be added without much attempt at classifying them.

Among English writers: Hyde Clarke's *Researches on prehistoric and protohistoric comparative philology, mythology, and archæology in connection with the origin of culture in America* (London, 1875). Robert Knox's *Races of Men* (London, 1862); J. Kennedy in his *Probable origin of the American Indians* (London, 1854), and in his *Essays, ethnological and linguistic* (London, 1861); J. C. Beltrami's *Pilgrimage in Europe and America* (London, 1828); C. H. Smith in *Edinburgh New Philosophical Journal*, xxxviii. 1.

Some French authorities: Nadaillac, *Les premiers hommes*, ii. 93, and his *L'Amérique préhistorique*, ch. 10, and to the English translation W. H. Dall adds a chapter on this subject; Brasseur de Bourbourg's introduction to his *Popul Vuh* (section 4); Dabry de Thiersant's *De l'origine des indiens du nouveau monde et de leur civilisation* (Paris, 1883); M. A. Baguet's "Les races primitives des deux Amériques" in *Bull. de la Soc. de Géog. d'Anvers*, viii. 440; Domenech in *Revue Contemporaine*, 1st ser., xxxiii. 283; xxxiv. 5, 284; 2d ser., iv.; Baron de Bretton's *Origines des peuples de l'Amérique*, in the Nancy *Compte-rendu, Congrès des Américanistes*, i. 439.

Among German writers perhaps the most weighty are Theodor Waitz in his *Anthropologie der Naturvölker* (1862–66), and Carl Vogt's *Vorlesungen über den Menschen*, translated as *Lectures on Man* (1864).

American writers: Drake's *Book of the Indians*, ch. 1, 2; Doddridge's *Notes on the Settlement and Indian Wars of Virginia and Penna.*, ch. 3; Geo. Catlin's *Life amongst the Indians* (1861), and his *Last Rambles* (1867), with extracts in *Smithsonian Ann. Rept.*, 1885, iii. 749; Isaac McCoy's *Hist. of Baptist Indian Missions* (Washington, 1840); Short's *No. Amer. of Antiq.*, ch. 4, 11; B. H. Coate's *Annual Discourse before the Penna. Hist. Soc.* (Philad., 1834), reviewing the various theories; also in their *Memoirs*, iii. part 2; John Y. Smith in *Wisconsin Hist. Soc. Ann. Rep.*, iv. 117; Dennie's *Portfolio*, xiii. 231, 519; xiv. 7; A. R. Grote in *Amer. Naturalist*, xi. 221 (April, 1877); C. C. Abbott in *Ibid.* x. 65.

Some Canadian writers: J. Campbell in *Quebec Lit. and Hist. Soc. Transactions* (1880–81); Napoléon Legendre's "Races indigénes de l'Amérique devant l'histoire" in *Proc. Royal Soc. of Canada*, ii. 25.

[2] The book is a rare one. Field, No. 586. Sabin, vii. p. 157. Quaritch in 1885 had not known of a copy being for sale in twenty years. He then had two (Nos. 28,355-56). There is one in Harvard College Library. Garcia drew somewhat from a manuscript of Juan de Vetanzos, a companion of Pizarro, and he gives the native accounts of their origin. There was a second edition, with Barcia's Annotations, Madrid, 1729 (Carter-Brown, iii. 432).

[3] *New English Canaan* (Amsterdam, 1637 — C F. Adams' ed., 1883, pp. 125, 129).

[4] There is an English translation in the *Bibliotheca*

America except Yucatan (which had an Ethiopian stock) was peopled from the Scandinavian North; that the Peruvians were from China, and that the Moluccans peopled the regions below Peru. Grotius aroused an antagonist in Johannes de Laet, whose challenge appeared the next year: *Joannis de Laet Antwerpiani notae ad dissertationem Hugonis Grotii de origine gentium Americanarum: et observationes aliquot ad meliorem indaginem difficillimæ illius quæstionis* (Amsterdam, 1643).[1] He combated his brother Dutchman at all points, and contended that the Scythian race furnished the predominant population of America. The Spaniards went to the Canaries, and thence some of their vessels drifted to Brazil. He is inclined to accept the story of Madoc's Welshmen, and think it not unlikely that the people of the Pacific islands may have floated to the western coast of South America, and that minor migrations may have come from other lands. He supports his views by comparisons of the Irish, Gallic, Icelandic, Huron, Iroquois, and Mexican tongues.

To all this Grotius replied in a second *Dissertatio*, and De Laet again renewed the attack: *Ioannis de Laet Antwerpiani responsio ad dissertationem secundam Hvgonis Grotii, de origine gentium Americanarum. Cum indice ad utrumque libellum* (Amsterdam, 1644).[2]

De Laet, not content with his own onset, incited another to take part in the controversy, and so George Horn (Hornius) published his *De Originibus Americanis, libri quatuor* (Hagæ Comitis, *i. e.* The Hague, 1652; again, Hemipoli, *i. e.* Halberstadt, 1669).[3] His view was the Scythian one, but he held to later additions from the Phœnicians and Carthaginians on the Atlantic side, and from the Chinese on the Pacific.

For the next fifty years there were a number of writers on the subject, who are barely names to the present generation;[4] but towards the middle of the eighteenth century the question was considered in *The American Traveller* (London, 1741), and by Charlevoix in his *Nouvelle France* (1744). The author of an *Enquiry into the Origin of the Cherokees* (Oxford, 1762) makes them the descendants of Meshek, son of Japhet. In 1767, however, the question was again brought into the range of a learned and disputatious discussion, reviving all the arguments of Grotius, De Laet, and Horn, when E. Bailli d'Engel published his *Essai sur cette question: Quand et comment l'America a-t-elle été peuplée d'hommes et d'Animaux?* (5 vols., Amsterdam, 1767, 2d ed., 1768). He argues for an antediluvian origin.[5] The controversy which now followed was aroused by C. De Pauw's characterization of all American products, man, animals, vegetation, as degraded and inferior to nature in the old world, in an essay which passed through various editions, and was attacked and defended in turn.[6] An Italian, Count Carli, some years later, controverted De Pauw, and using every resource of mythology, tradition, geology, and astronomy, claimed for the Americans a descent from the Atlantides.[7] It was not

Curiosa. [Edited by Edmund Goldsmidt.] (Edinburgh, 1883–85.) No. 12. *On the origin of the native races of America. To which is added, A treatise on foreign languages and unknown islands, by Peter Albinus. Translated from the Latin.* The translation is unfortunate in its blunders. Cf. H. W. Haynes in *The Nation*, Mar. 15, 1888. Grotius was b. 1583; d. 1645.

[1] Carter-Brown, ii. 522, 523, 543.

[2] This book is scarcer than the first (Brinley, iii. 5414–15). There is a letter addressed to De Laet, touching Grotius, in Claudius Morisotus's *Epistolarum Centuriæ duæ*, 1656.

[3] Brinley, iii. 5407–8. In Samuel Sewall's *Letter Book*, i. 289, is an amusing reference to the "vanities of Hornius."

[4] Jo. Bapt. Poisson, *Animadversiones ad ea quæ Hugo Grotius et Joh. Lahetius de origine gentium Peruvianarum et Mexicanarum scripserunt* (Paris, 1644); Rob. Comtæus Nortmanus, *De origine gentium Americanarum* (Amsterdam, 1664), an academic dissertation adopting the Phœnician view; A. Mil, *De origine animalium et migratione populorum* (Geneva, 1667); Erasmus Franciscus, *Lust- und Staatsgarten* (Nürnberg, 1668), with a third part on the aboriginal inhabitants (Müller, 1877, no. 1150); Gottfried [Godofredus] Wagner, *De Originibus Americanis* (Leipzig, 1669); J. D. Victor, *Disputatio historia de America* (Jena, 1670); E. P. Ljung, *Dissertatio de origine gentium novi orbis prima* (Stregnäs [Sweden] 1676). An essay of 1695 reprinted in the *Memoirs, Anthrop. Soc. of London*, i. 365; Nic Witsen, *Noord-en-Oost Tartarye* (2d ed., Amsterdam, 1705), holding to the migration from northeastern Asia.

[5] Cf. Alex. Catcott's *Treatise on the Deluge* (2d ed., enlarged, London, 1768), and A. de Ulloa's *Noticias Americanas* (Madrid, 1772, 1792), for speculations.

[6] Cf. Sabin, xiv. 59,239, etc., for editions. The original three vols. appeared in Berlin in 1768, 1769, and 1770, respectively. The best edition, with De Pauw's subsequent defence and Pernetty's attack, was issued at London in three vols. in 1770: —

Recherches philosophiques sur les Américains, ou Mémoires interessants pour servir à l'histoire de l'espèce humaine.

Contents: Du climat de l'Amérique. — De la complexion altérée de ses habitants. — De la découverte du Nouveau-Monde. — De la variété de l'espèce humaine en Amérique. — De la couleur des Américains. — Des anthropophages. — Des Eskimaux; des Patagons. — Des Blafards et des Négres blancs. — De l'Orang-Outang. — Des hermaphrodites de la Floride. — De la circoncision et de l'infibulation. — Du génie abruti des Américains. — De quelques usages bizarres, communs aux deux continents. — De l'usage des flèches empoisonnées chez les peuples des deux continents. — De la religion des Américains. — Sur le grand Lama. — Sur les vicissitudes de notre globe. — Sur le Paraguai. — Défenses des recherches sur les Américains. — D. Pernetty. Dissertation sur l'Amérique et les Américains contre les recherches philosophiques de M. de Pauw.

There was an edition in French at Berlin in 1770, in 2 vols., and, with Pernetty annexed, in 1774, in 3 vols. The *Defenses* was printed also at Berlin in 1770. These were all included in De Pauw's *Œuvres Philosophiques*, published at Paris "*an iii.*" An English translation by J. Thomson was printed at London, 1795. Daniel Webb published some selections in English at Bath, 1789, 1795, and at Rochdale, 1806. Pernetty's *Examen* was printed at Berlin in 1769. There is another little tractate of this time attributed to Pernetty, *De l'Amérique et des Américains* (Berlin, 1771), in whose humor De Pauw fares no better; but Rich has a note on the questionable attributing of it to Pernetty, and its real author was probably C. de Bonneville (cf. Hœfer).

[7] *Delle Lettere Americane* (*opere*, xi.–xiv., Milano, 1784–94); better known in J. B. L. Villebrune's French translation, *Lettres Américaines* (2 vols.; Paris and Boston, 1787); Sabin, no. 10,912. There is also a German version.

till after reports had come from the Ohio Valley of the extensive earthworks in that region that the question of the earlier peoples of America attracted much general attention throughout America; and the most conspicuous spokesman was President Stiles of Yale College, in an address which he delivered before the General Assembly of Connecticut, in 1783, on the future of the new republic.[1] In this, while arguing for the unity of the American tribes and for their affinity with the Tartars, he held to their being in the main the descendants of the Canaanites expelled by Joshua, whether finding their way hither by the Asiatic route and establishing the northern Sachemdoms, or coming in Phœnician ships across the Atlantic to settle Mexico and Peru.[2] Lafitau in 1724 (*Mœurs de Sauvages*) had contended for a Tartar origin. We have examples of the reasoning of a missionary in the views of the Moravian Loskiel, and of a learned controversialist in the treatise of Fritsch, in 1794 and 1796 respectively.[3]

The earliest American with a scientific training to discuss the question was a professor in the University of Pennsylvania, Benjamin Smith Barton, a man who acquired one of the best reputations in his day among Americans for studies in this and other questions of natural history. His father was an English clergyman settled in America, and his mother a sister of David Rittenhouse. It was while he was a student of medicine in Edinburgh that he first approached the subject of the origin of the Americans, in a little treatise on American Antiquities, which he never completed.[4] His *Papers relating to certain American Antiquities* (Philad., 1796) consists of those read to the Amer. Philos. Soc., and printed in their *Transactions* (vol. iv.). They were published as the earnest of his later work on American Antiquities. He argues against De Pauw, and contends that the Americans are descended — at least some of them — from Asiatic peoples still recognized. The *Papers* include a letter from Col. Winthrop Sargent, Sept. 8, 1794, describing certain articles found in a mound at Cincinnati, and a letter upon them from Barton to Dr. Priestley. He in the end gave more careful attention to the subject, mainly on its linguistic side, and went farther than any one had gone before him in his *New Views of the Origin of the Tribes and Nations of America* (Philad., 1797; 2d ed., enlarged, 1798).[5] The book attracted much notice, and engaged the attention in some degree of European philologists, and made Barton at that time the most conspicuous student on these matters in America. Jefferson was at that time gathering material in similar studies, but his collections were finally burned in 1801. Barton, in dedicating his treatise to Jefferson, recognized the latter's advance in the same direction. He believed his own gathering of original MS. material to be at that time more extensive than any other student had collected in America. His views had something of the comprehensiveness of his material, and he could not feel that he could point to any one special source of the indigenous population.

BENJAMIN SMITH BARTON.

During the early years of the present century old theories and new were abundant. The powerful intellect and vast knowledge of Alexander von Humboldt were applied to the problem as he found it in Middle America. He announced some views on the primitive peoples in 1806, in the *Neue Berlinische Monatsschrift* (vol. xv.); but his ripened opinions found record in his *Vues de Cordillères et monumens des peuples indigènes de l'Amérique* (Paris, 1816), and the Asiatic theory got a conservative yet definite advocate.

Hugh Williamson[6] thought he found traces of the Hindoo in the higher arts of the Mexicans, and marks of the ruder Asiatics in the more northern American peoples. A conspicuous littérateur of the day, Samuel L. Mitchell, veered somewhat wildly about in his notions of a Malay, Tartar, and Scandinavian origin.[7] Meanwhile something like organized efforts were making. The American Antiquarian Society was formed in 1812.[8] Silliman began his *Journal of Arts and Sciences* in 1819, and both society and periodical proved

[1] *The United States elevated to Glory and Honor.* New Haven, 1783. It is included in J. W. Thornton's *Pulpit of the Amer. Revolution* (Boston, 1860).

[2] This Canaanite view, though hardly held with the scope given by Dr. Stiles, had been asserted earlier by Gomara, De Lery, and Lescarbot. Cf. *For. Quart. Rev.*, Oct., 1856.

[3] G. H. Loskiel, *Mission of the United Brethren among the Indians, trans. from the German by La Trobe* (London, 1794). Johann Gottlieb Fritsch, *Disputatio historico-geographica in qua quæritur utrum veteres Americam noverint nec ne* (Curæ Regnilianæ, 1796).

[4] *Observations on some Parts of Nat. Hist.*, Lond., 1787.

[5] Pilling, *Bibliog. Siouan languages* (1887, p. 4).

[6] *Hist. North Carolina*, 1811–12.

[7] Haven, *Archæol. U. States*, 35. Cf. Mitchell's papers in the *Archæologia Americana*, i.

[8] There is a fair sample of the conjectural habit of the time in the paper of Moses Fiske, in the first volume of the Society's *Transactions*, 300.

instruments of wider inquiry. In the first volume published by the Antiquarian Society, Caleb Atwater, in his treatise on the Western Antiquities, gave the earliest sustained study of the subject, and believed in a general rather than in a particular Asiatic source. The man first to attract attention for his grouping of ascertained results, unaided by personal explorations, however, was Dr. James H. McCulloh, who published his *Researches on America* at Baltimore in 1816. The book passed to a second edition the next year, but received its final shape in the *Researches, philosophical and antiquarian, concerning the aboriginal history of America* (1829), a book which Prescott[1] praised for its accumulated erudition, and Haven[2] ranked high for its manifestations of industry and research, calling it encyclopædic in character. McCulloh examines the native traditions, but can evolve no satisfactory conclusion from them as to the origin of the Americans. The public mind, however, was not ripe for scholarly inquiry, and there was not that in McCulloh's style to invite attention; and greater popularity followed upon the fanciful and dogmatic confidence of John Haywood,[3] upon the somewhat vivid if unsteady speculations of C. S. Rafinesque,[4] and even upon the itinerant Josiah Priest, who boasted of the circulation of thousands of copies of his popular books.[5] John Delafield's *Inquiry into the Origin of the Antiquities of America* (N. Y., 1839) revived the theory, never quite dormant, of the descent of the Mexicans from the riper peoples of Hindostan and Egypt; while the more barbarous red men came of the Mongol stock. The author ran through the whole range of philology, mythology, and many of the customs of the races, in reaching this conclusion. A little book by John McIntosh, *Discovery of America and Origin of the North American Indians*, published in Toronto, 1836, was reissued in N. Y. in 1843, and with enlargements in 1846, *Origin of the North American Indians*, continued down to 1859 to be repeatedly issued, or to have a seeming success by new dates.[6]

When Columbus, approaching the main land of South America, imagined it a large island, he associated it with that belief so long current in the Old World, which placed the cradle of the race in the Indian Ocean, — a belief which in our day has been advocated by Haeckel, Caspari and Winchell, — and imagined he was on the coasts, skirting an interior, where lay the Garden of Eden.[7] No one had then ventured on the belief that the doctrine of Genesis must be reconciled with any supposed counter-testimony by holding it to be but the record of the Jewish race. Columbus was not long in his grave when Theophrastus Paracelsus, in 1520, and before the belief in the continuity of North America with Asia was dispelled, and consequently before the question of how man and animals could have reached the New World was raised, first broached the heterodox view of the plurality of the human race. All the early disputants on the question of the origin of the American man looked either across the Atlantic or the Pacific for the primitive seed; nor was there any necessary connection between the arguments for an autochthonous American man and a diversity of race, when Fabricius, in 1721, published his *Dissertatio Critica*[8] on the opinions of those who held that different races had been created. From that day the old orthodox interpretation of the record in Genesis found no contestant of mark till the question came up in relation to the American man, it being held quite sufficient to account for the inferiority or other distinguishing characteristics of race by assigning them to the influence of climate and physical causes.[9]

The strongest presentation of the case, in considering the American man a distinct product of the American soil, with no connection with the Old World[10] except in the case of the Eskimos, was made when S. G. Morton, in 1839, printed his *Crania Americana, or a comparative view of the skulls of various aboriginal nations of North and South America*, of which there was a second edition in 1844.[11] Here was a new test, and applied, very likely, in ignorance of the fact that Governor Pownal, in 1766, in Knox's *New Collection of Voyages*, had suggested it.[12] Dr. Morton had gathered a collection of near a thousand skulls from all parts of the world,[13] and based his deductions on these, — a process hardly safe, as many of his successors have determined.[14]

[1] *Mexico*, Kirk's ed., iii. 375.

[2] *Archæol. U. S.*, 48.

[3] *Hist. of Tennessee*, Nashville, 1823.

[4] Introd. to Marshall's *Kentucky*, 1824; *The Anc. Mts. of N. & S. America*, 2d ed., 1838, etc.

[5] *Amer. Antiq. and Discoveries in the West*, 1833, which Rafinesque thought largely taken from him. Cf. Haven on these writers, pp. 38–41; Sabin, xv. 65, 484.

[6] Pilling, *Bibliog. Siouan Languages*, pp. 47, 48.

[7] Peschel, *Races of Men* (London, 1876), p. 32.

[8] Eng. transl. in *Memoirs, Anthropological Society of London*, i. 372.

[9] There is a summary of the progressive conflict on the question of the unity and plurality of races in the introduction to Topinard's *Anthropology*. Cf. Peschel's *Races of Man* (Eng. transl., N. Y., 1876), p. 6.

[10] The idea in general was not wholly new. Capt. Bernard Romans, in his *Concise Nat. Hist. of East and West Florida* (N. Y., 1776), had expressed the opinion "that God created an original man and woman in this part of the globe of different species from any in the other parts" (p. 38). Clavigero, in 1780, believed that the distinct linguistic traits of the Americans pointed to something like an independent origin. Cf. W. D. Whitney on the "Bearing of Languages on the Unity of Man," in *North Amer. Review*, cv. 214.

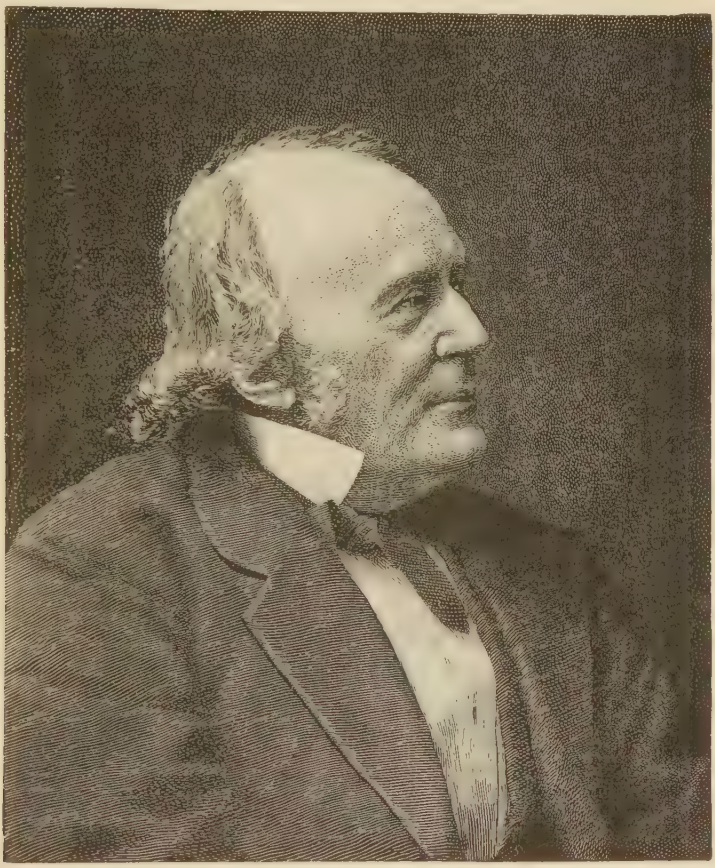
[11] Cf. Jeffries Wyman in *No. Am. Rev.*, li.

[12] Cardinal Wiseman's *Lectures*, 5th ed., London, p. 158.

[13] Described in *Trans. Amer. Ethnol. Soc.*, ii. The collection went to the Acad. of Natural Sciences in Philad., and is examined by Dr. J. Austin Meigs in its *Proc.*, 1860. Cf. Meigs's *Catalogue of human crania in the Acad. Nat. Sci.* (Philad., 1857).

[14] Morton's latest results are given in a paper, "The physical type of the American Indian," left unfinished, but completed by John S. Phillips, and printed in Schoolcraft's *Indian Tribes*, ii. He also printed *An Inquiry into the distinctive characteristics of the Aboriginal Race of America* (Boston, 1842; Philad., 1844); and *Some Observations in the Ethnography and Archæology of the American Aborigines* (N. Haven, 1846, — from the *Amer. Jour. of Science*, 2d ser., ii.). Cf. *Trans. Amer. Ethnol. Soc.* ii. 219. Cf. Allibone's *Dictionary*, ii. 1376. It is certainly

The views of Morton respecting the autochthonous origin of the Indian found an able upholder when Louis Agassiz, taking the broader view of the independent creation of higher and inferior races,[1] gave in his adhesion to the original American man (*Christian Examiner*, July, 1850, vol. xlix. p. 110). These views got more extensive expression in a publication which appeared in Philadelphia in 1854, in which some unpublished papers of Morton are accompanied by a contribution from Agassiz, and all are grouped together and augmented by material of the editors, Dr. Josiah Clark Nott[2] of Mobile, and Mr. George R. Gliddon, long a resident in Cairo. The *Types of Mankind, or Ethnological Researches* (Philad., 1854, 1859, 1871), met with a divided reception; the conservative theologians called it pretentious and false, and there was some color for their detraction in some rather jejune expositions of the Hebrew Scriptures contained in the book. The physiolo-



LOUIS AGASSIZ.*

evident that skull capacity is no sure measure of intelligence, and the Indian custom of misshaping the head offers some serious obstacles in the study. Cf. Nadaillac, *L'Amér. préhist.*, 512; L. A. Gosse, *Les déformations artificielles du crane* (Paris, 1855); Daniel Wilson's "Indications of Ancient Customs suggested by certain cranial forms," in *Amer. Antiq. Soc. Proc.* (1863); Dabry de Thiersant's *Origine des indiens du Nouveau Monde*, p. 12; W. F. Whitney, on "Anomalies, injuries and diseases of the bones of the native races of No. America," in *Peabody Mus. Rept.*, xviii. 434. On the difficulties of the study see Lucien Carr in *Ibid.* xi. 361; Flower in the *Journal Anthropological Institute*, May, 1885; Dawson, *Fossil Men*, chap. 7. Further see: Anders Retzius, on "The Present State of Ethnology in relation to the form of the human skull," in *Smithson. Rept.*, 1859; Waitz's *Introd. to Anthropology*, Eng. transl., pp. 233, 261; Carl Vogt's *Lectures on Man* (lect. 2); A. Quatrefages and E. T. Hamy, *Crania Ethica* (Paris, 1873–77); Nott and Gliddon, *Types of Mankind;* Nadaillac's *L'Amérique préhist.*, ch. 9, and *Les premiers hommes*, i. ch. 3.

[1] An anonymous book, *The Genesis of Earth and Man* (Edinburgh, 1856), places the negro as the primal stock, and traces out the higher races by variation.

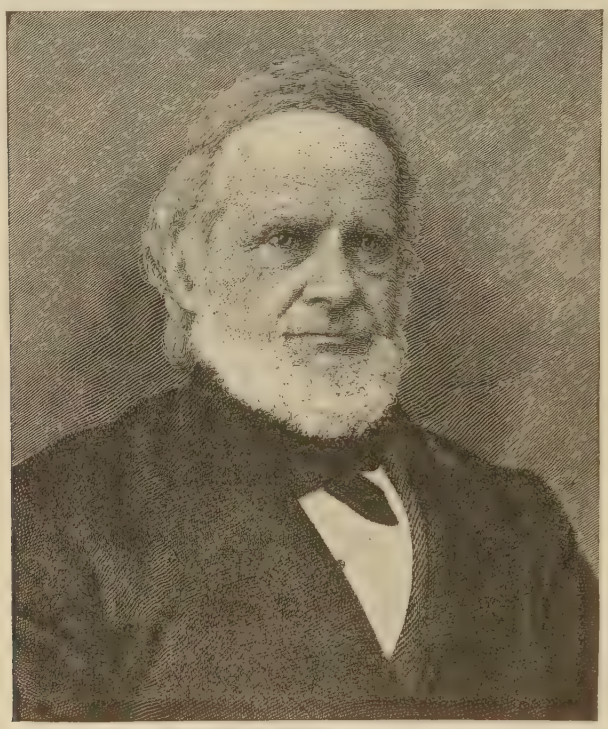
[2] Dr. Nott had given some indication of his views in "An Examination of the physical history of the Jews in its bearing on the question of the Unity of the Races" (*Amer. Asso. Adv. Sci. Proc.*, iii. 1850).

* After a photograph, hanging in the Somerset Club, Boston; suggested to the editor by Mr. Alexander Agassiz as a satisfactory likeness.

gists thought it brought new vigor to a question which properly belonged to science.[1] Other fresh material, with some discussions, made up a new book by the same editors, published three years later, *Indigenous Races of the Earth, or New Chapters of Ethnological Inquiry* (Philad. and London, 1857; 2d ed., 1857).[2]

The theological attacks were not always void of a contempt that ill befitted the work of refutation. The most important of them were John Bachman's *Doctrine of the Unity of the Human Race* (Charleston, S. C., 1850), with his *Notice of the Types of Mankind* (Charleston, 1854–55); and Thomas Smyth's *Unity of the Human Race proved by Scripture, Reason and Science* (N. Y., 1850).[3]

The scientific attack on Morton and Agassiz, and the views they represented, was an active one, and embraced such writers as Wilson, Latham, Pickering, and Quatrefages.[4] The same collection of skulls which had furnished Morton with his proofs yielded exactly opposite evidence to Dr. J. A. Meigs in his *Observa-*



SAMUEL FOSTER HAVEN.*

[1] Cf. References in Allibone, i. 678; *Poole's Index*, p. 796.

[2] The editor's collaborateurs were Alfred Maury, Francis Palszky, J. Aitken Meigs, J. Leidy, and Louis Agassiz. Nott had in the interval since his previous book furnished an appendix on the unity or plurality of Races to the English transl. of Gobineau's *Moral Diversity of Races* (Philad., 1856).

[3] Haven gives a summary of the arguments of each (p. 90, etc.). For various views on this side see Southall's *Recent Origin of Man*, ch ii. 36, 37, and his *Epoch of the Mammoth*, ch. 2, where he allows that the proofs from traditions and customs are not conclusive; George Palmer's *Migration from Shinar; or, the Earliest Links between the Old and New Continents* (London, 1879); Edward Fontaine's *How the World was Peopled* (N. Y., 1876); Dr. Samuel Forrey in *Amer. Biblical Repository*, July, 1843; McClintock and Strong's *Cyclopædia*, under "Adam"; Henry Cowles' *Pentateuch* (N. Y., 1874),—not to name many others. See *Poole's Index*, 1073.

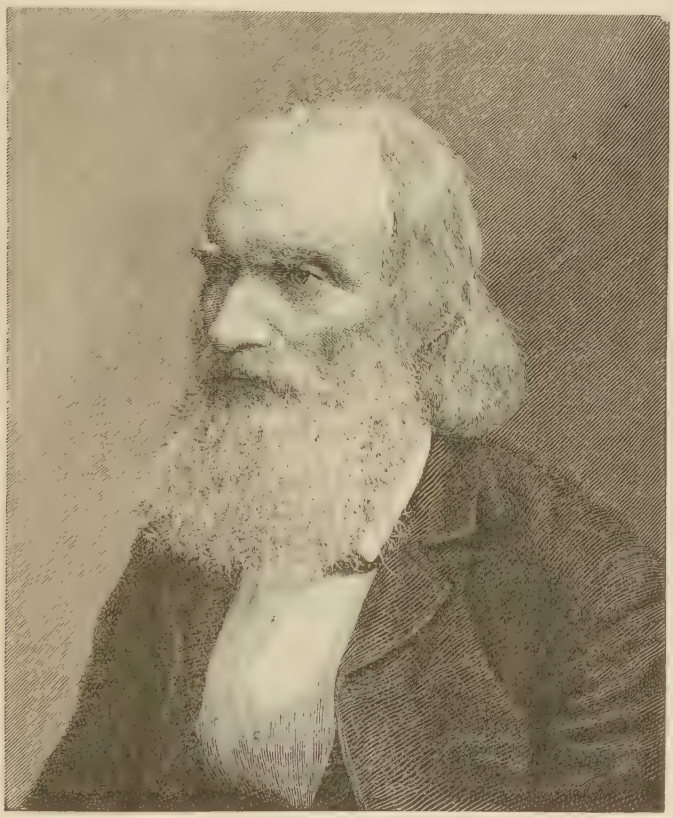
[4] Wilson's first criticism was in the *Canadian Journal* (1857); then in the *Edinburgh Philosophical Journal* (Jan., 1858); in the *Smithsonian Rept.* (1862), p. 240, on the "American Cranial Type;" and in his *Prehist. Man* (ii. ch. 20). Latham's *Nat. Hist. of the Varieties of Man.* Charles Pickering's *Races of Men* (1848). The orthodox monogenism of A. de Quatrefages is expressed in his *De l'unité de l'espèce humaine* (Paris, 1864, 1869); in his *Hist. générale des Races humaines* (Paris, 1887); in his *Human Species* (N. Y., 1879), and in papers in *Revue des Cours Scientifiques*, 1864–5, 1867–8; in his *Nat. Hist. of Man* (Eng. transl., N. Y., 1875); in *Catholic World*, vii. 67; and in *Popular Science Monthly*, i. 61.

Cf. further, Retzius in *Archives des Sciences Naturelles* (Genève, 1845–52); Col. Chas. Hamilton Smith's *Nat. Hist. Human Species* (1848); Dawson in *Leisure Hour*, xxiii.

* After a photograph. A heliotype of a portrait by Custer is in the *Amer. Antiq. Soc. Proc.*, Ap., 1879. Haven's *Annual Reports*, as librarian of the Amer. Antiq. Soc., furnish a good chronological conspectus of the progress of anthropological discovery.

tions upon the Cranial Forms of the American Aborigines (Philad., 1866).[1] Two of the most celebrated of the evolutionists reject the autochthonous view, for Darwin's *Descent of Man* and Haeckel's *Hist. of Creation* consider the American man an emigrant from the old world, in whatever way the race may have developed.[2]

Of the leading historians of the early American peoples, Prescott, dealing with the Mexicans, is inclined to agree with Humboldt's arguments as to their primitive connection with Asia.[3] Geo. Bancroft, in the third volume of his *Hist. of the United States* (1840), surveying the field, found little in the linguistic affinities, little in what Humboldt gathered from the Mexican calendars and from other developments, nothing from the Western mounds, which he was sure were natural earth-knobs and water-worn passages,[4] and decides upon some transmission by the Pacific route from Asia, but so remote as to make the American tribes practically indigenous, so far as their character is concerned.



SIR DANIEL WILSON, LL. D., F. R. S. E.*

813, and in his *Fossil Men*, p. 334, who holds the biblical account to be "the most complete and scientific;" Figuier's *World before the Deluge* (N. Y., 1872), p. 469. Geo. Bancroft sees no signs to reverse the old judgment respecting a single human race.

[1] He found all three varieties of skulls in America: the long-headed (dolichocephalic), the short-headed (brachycephalic), and the medium (mesocephalic). He found the long heads to predominate, except in Peru. Meigs had earlier studied the subject in his *Observations on the Form of the Occiput* (Philad., 1860). Cf. Busk in *Jour. Anthrop. Inst.*, April, 1873; Wyman, in *Feab. Mus. Rept.*, 1871.

[2] H. H. Bancroft, *Nat. Races*, v. 129, 131, gives references on the autochthonous theory. It is held by Nadaillac, *Les premiers hommes*, ii. 117; Fred. von Hellwald in *Smithsonian Rept.*, 1866; Bollaert's "Contribution to an Introduction to the Anthropology of the New World" in *Memoirs, Anthrop. Society of London*, ii. 92; F. Müller, *Allgemeine Ethnographie;* and Simonin, *L'homme Américain* (Paris, 1870). F. W. Putnam (*Report* in *Wheeler's Survey*, vii. p. 18) says: "The primitive race of America was as likely autochthonous and of Pliocene age as of Asiatic origin." The autochthonous view is probably losing ground. Dall, in ch. 10, appended to the English translation of Nadaillac's *Prehistoric America*, sums up the prevailing arguments against it. Cf. also Dabry de Thiersant's *Origine des Indiens du Nouveau Monde*, ch. 1.

[3] Cf. also Prescott's *Essays*, 224.

[4] This view has necessarily been abandoned in his later editions. Cf. orig. ed., iii. 307; and final revision, ii. 130.

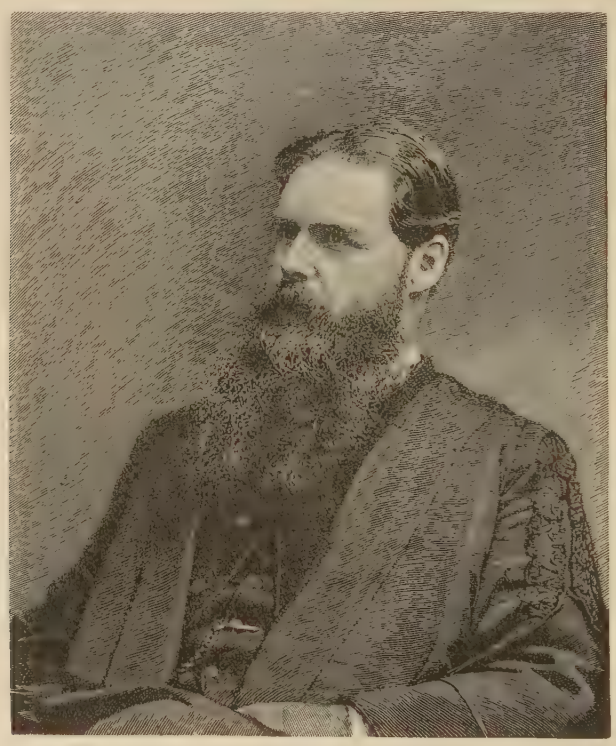
* From a photograph kindly furnished, on request, by Professor Wilson's family.

In 1843 another compiler of existing evidence appeared in Alexander W. Bradford in his *American Antiquities, or Researches into the origin and history of the Red Race.* His views were new. He connects the higher organized life of middle America with the corresponding culture of Southern Asia, the Polynesian islands probably furnishing the avenue of migrations; while the ruder and more northern peoples of both shores of the Pacific represent the same stock degraded by northern migrations.

In 1845 the American Ethnological Society began its publications, and in Albert Gallatin it had a vigorous helper in unravelling some of these mysteries. A few years later (1853) the United States government lent its patronage and prestige to the huge conglomerate publication of Schoolcraft, his *Indian Tribes of the United States*, which leaves the bewildered reader in a puzzling maze, — the inevitable result of a work undertaken beyond the ambitious powers of an untrained mind. The work is not without value if the user of it has more systematic knowledge than its compiler, to select, discard, and arrange, and if he can weigh the importance of the separate papers.[1]

In 1856 Samuel F. Haven, the librarian and guiding spirit of the American Antiquarian Society, summed up, as it had never been done before, for comprehensiveness, and with a striking prescience, the progress and results of studies in this field, in his *Archæology of the United States* (*Smithsonian Contributions*, viii., Washington, 1856).

In 1851 Professor Daniel Wilson, in his *Prehistoric Annals of Scotland*, first brought into use the designation "prehistoric" as expressing "the whole period disclosed to us by means of archæological evidence, as distinguished from what is known through written records; and in this sense the term was speedily adopted by the archæologists of Europe."[2] Eleven years later he published his *Prehistoric Man: Researches into the*



EDWARD B. TYLOR.*

[1] Haven at the end of his second chapter tries to place Schoolcraft, and he does better than one would expect, at that day. For Schoolcraft's special notes on Antiquities see his vol. i. p. 44; ii. 83; iii. 73; iv. 113; v. 85, 657. For bibliography see Pilling, Sabin, Field, etc.

[2] Again he says: "Man may be assumed to be prehistoric wherever his chroniclings of himself are undesigned, and his history is wholly recoverable by induction. The term has, strictly speaking, no chronological significance; but in its relative application corresponds to other archæological, in contradistinction to geological periods." Of America he says: "A continent where man may be studied under circumstances which seem to furnish the best guarantee of his independent development." Dawkins (*Cave-hunting*, 136) says: "For that series of events which extends from the borders of history back to the remote age,

* After a photograph.

origin of civilization in the old and new world.[1] The book unfortunately is not well fortified with references, but it is the result of long study, partly in the field, and written with a commendable reserve of judgment. It is in the main concerned with the western hemisphere, which he assumes with little hesitation "began its human period subsequent to that of the old world, and so started later in the race of civilization." While thus in effect a study of early man in America, its scope makes it in good degree a complement to the *Origin of Civilization* of Lubbock.

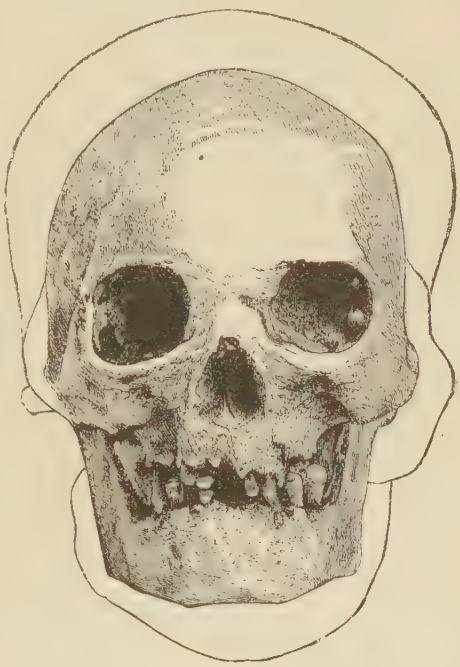
The comparative study of ethnological traces, to enable us to depict the earliest condition of human society, owes a special indebtedness to Edward B. Tylor, among writers in English. It is nearly twenty-five years since he first published his *Researches into the Early History of Mankind and the Development of Civilization*,[2] the work almost, if not quite, of a pioneer in this interesting field, and he has supplied the reader with all the references necessary to test his examples. Max Müller (*Chips*, ii. 262) has pointed out how he has vitalized his vast accumulation of facts by coherent classifications instead of leaving them an oppressive burden by simple aggregation, as his precursors in Germany, Gustav Klemm[3] and Adolf Bastian,

where the geologist, descending the stream of time, meets the archæologist, I have adopted the term *prehistoric*."

The divisions of prehistoric time now most commonly employed are: For the oldest, the Palæolithic age, as Lubbock first termed it, which, with a shadowy termination, has an unknown beginning, covering an interval geologically of vast extent. It is the primitive stone age, the epoch of flint-chippers; and but a single positive vestige of any community of living is known to archæologists: the village of Solutré, in Eastern France, being held by some to be associated with man in this earlier stage of his development. This stone period is sometimes divided in Europe into an earlier and later period, representing respectively the men of the river drift and of the caves. In the first period, called sometimes that of the race of Canstadt, and by Mortillet the Chellean period, we have, as is claimed, a savage hunter race, represented by the Neanderthal skull; and because in two jaw-bones discovered the genial tubercle is undeveloped, a school of archæologists contend that the race was speechless (Horatio Hale's "Origin of Language," in *Am. Asso. Adv. Sci. Proc.*, xxxv., Cambridge, 1886; and separate, p. 31). This theory, however, seems to rest on a misconception. Cf. Topinard on the jaw-bone from the Naulette cave in the *Revue d'Anthropologie*, 3d ser. i., p. 422 (1886). It is held that the ethnical relations of this race are unknown, and it is not palpably connected with the race of the later period, the race of the caves, which archæologists, like Carl Vogt, Lartet, and Christy, call the cave-bear epoch, as its evidences are found in the cave deposits of Europe.

This cave race is represented by the Cromagnon skull, and, as Dawkins holds, is perpetuated to-day by the Eskimo, and was very likely also represented in the Guanches of the Canary Islands. Quatrefages calls it the race of Cromagnon; and the vanishing of it into the Neolithic people is obscure. It is claimed by some, but the evidence is questionable, that the development of the muscles of speech make this race the first to speak, and that thus man, as a speaking being, is probably not ten thousand years old.

The interval before the shaped and polished stone implements were used may have been long in some places, and the gradation may have been confused in others; and it is indeed sometimes said that the one and the other condition exist in savage regions at the present day, as many archæologists hold that they have always existed, side by side, though this proposition is also denied. Indeed, it is a question if the terms of the archæologist, signifying ages or epochs, have any time value, being rather characteristics of stages of development than of passing time. Those who find the ruder implements to stand for a people living with the cave-bear find, as they contend, a shorter-headed race producing these finer stone implements, and call it the Reindeer epoch. One of Lubbock's terms, the Neolithic age, has gained larger acceptance as a designation for this period since 1865, when he introduced it. With these polished stones we first find signs of domestic animals and of the practice of agriculture. Any considerable collection of these stone implements and ornaments will present to the observer great varieties, but with steady types, of such implements as axes, celts, hammers, knives, drills, scrapers, mortars and pestles, pitted stones, plummets, sinkers, spear-points, arrow-heads, daggers, pipes, gorgets,—not to name others.



FROM DAWSON'S FOSSIL MEN.*

On the American stone age, see Nadaillac, *Les premiers hommes*, p. 37; L. P. Gratacap in *Amer. Antiquarian*, iv.; and W. J. McGee, in *Pop. Sci. Monthly*, Nov., 1888, for condensed views; but the student will prefer the more enlarged views of Rau, Abbott and others.

[1] Cambridge, Eng., 1862; revised, 1865; and largely rewritten, London, 1876. Cf. his "Pre-Aryan American Man," in the *Roy. Soc. Canada Trans.*, i., 2d sect., 35, and his "Unwritten History" in *Smithsonian Rept.* (1862).

[2] London, 1865, 1870; N. Y., 1878.

[3] Tylor speaks of Klemm's *Allgemeine Culturgeschichte der Menschheit* and his *Allgemeine Culturwissenschaft* as containing "invaluable collections of facts bearing on the history of civilization."

* A front view of a Hochelagan skull, surrounded by the outline, on a larger scale, of the Cromagnon skull.

had done; and it is remarked that while thus classifying, he has not been lured into pronounced theory, which future accession of material might serve to modify or change. He shortly afterwards touched a phase of the subject which he had not developed in his book in a paper on "Traces of the Early Mental Condition of Man,"[1] and illustrated the methods he was pursuing in another on "The Condition of Prehistoric Races as inferred from observations of modern tribes."[2]

The postulate of which he has been a distinguished expounder, that man has progressed from barbarism to civilization, was a main deduction to be drawn from his next sustained work, *Primitive Culture: researches into the development of mythology, philosophy, religion, art, and custom*.[3] The chief points of this further study of the thought, belief, art, and custom of the primitive man had been advanced tentatively in various other papers beside those already mentioned,[4] and in this new work he further acknowledges his obligations to Adolf Bastian's *Mensch in der Geschichte* and Theodor Waitz's *Anthropologie der Naturvölker*.[5] He still pursued his plan of collecting wide and minute evidence from the writers on ethnography and kindred sciences, and from historians, travellers, and missionaries, as his foot-notes abundantly testify.

THEODOR WAITZ.*

These studies of Professor Tylor abundantly qualified him to give a condensed exposition of the science of anthropology, which he had done so much to place within the range of scientific studies, by a primary search for facts and laws; and having contributed the article on that subject to the ninth edition of the *Encyclopædia Britannica*, he published in 1881 his *Anthropology: an Introduction to the study of man and civilization* (London and N. Y., 1881 and 1888). He maps out the new science, which has now received of late years so many new students in the scientific method, without references, but with the authority of a teacher, tracing what man has been and is under the differences of sex, race, beliefs, habits, and society.[6] Again, at the

[1] *Royal Inst. of Gt. Brit. Proc.*, reprinted in *Smithsonian Rept.*, 1867.

[2] *Internat. Cong. Prehist. Archæol. Trans.*, 1868.

[3] London, 1871; 2d ed., 1874, somewhat amplified; Boston, 1874; N. Y., 1877.

[4] See preface to *Primitive Culture*, 1st ed.

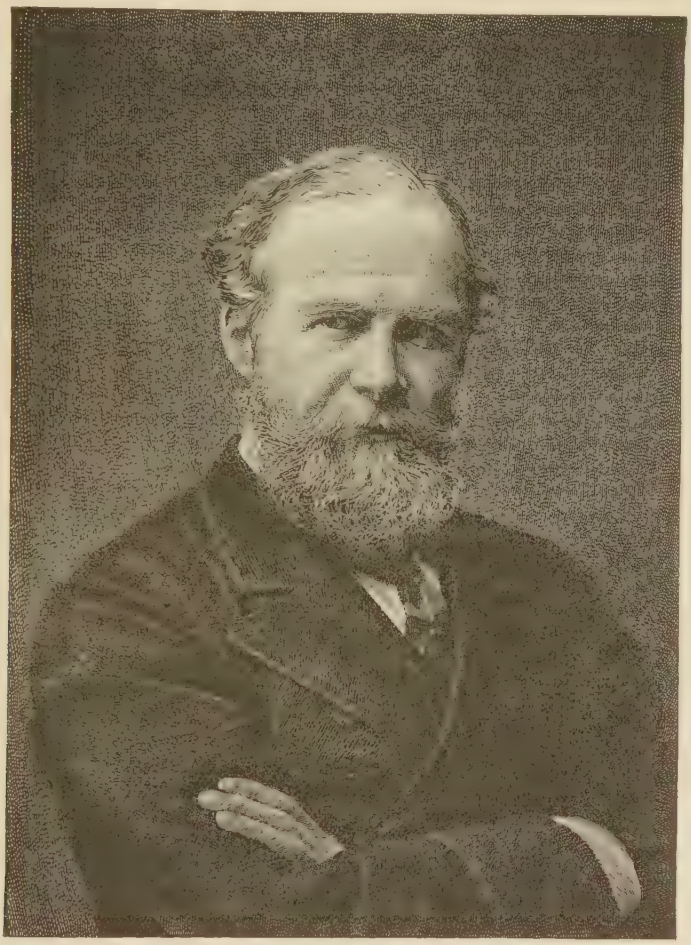
[5] Vols. iii. and iv. of this treatise (Leipzig, 1862–64) are given to "Die Amerikaner," and are provided with a list of books on the subject, and ethnological maps of North and South America. Brinton (*Myths*, p. 40) thinks it the best work yet written on the American Indians, though he thinks that Waitz errs on the religious aspects. Waitz has fully discussed the question of climate as affecting the development of people, and this is included with full references in that part of his great work which in the English translation is called an *Introduction to Anthropology*. Wallace and other observers contend that the direct efficacy of physical conditions is overrated, and that climate is but one of the many factors. F. H. Cushing discusses the question of habitation as affected by surroundings in the *Fourth Ann. Rept. Bur. of Ethnol.*, p. 473.

[6] Cf. Quatrefages' *Les Progrès de l'Anthropologie* (Paris, 1868), and Paul Topinard's *Anthropology* (English translation, London, 1878). Quatrefages (*Human Race*, New York, 1879) explains the anthropological method (p. 27).

* After a likeness in Otto Caspari's *Urgeschichte der Menschheit*, 2d ed., vol. i. (Leipzig, 1877).

Montreal meeting (August, 1884) of the British Association for the Advancement of Science, he set down in an address the bounds of the "American Aspects of Anthropology."[1]

Closely following upon Tylor in this field, and gathering his material with much the same assiduity, and presenting it with similar beliefs, though with enough individuality to mark a distinction, was another Englishman, who probably shares with Tylor the leading position in this department of study. Sir John Lubbock, in his *Prehistoric Times as illustrated by ancient remains, and the manners and customs of modern savages*,[2] gathered the evidence which exists of the primitive condition of man, embracing some chapters on modern savages so far as they are ignorant of the use of metals, as the best study we can follow, to fill out



SIR JOHN LUBBOCK.*

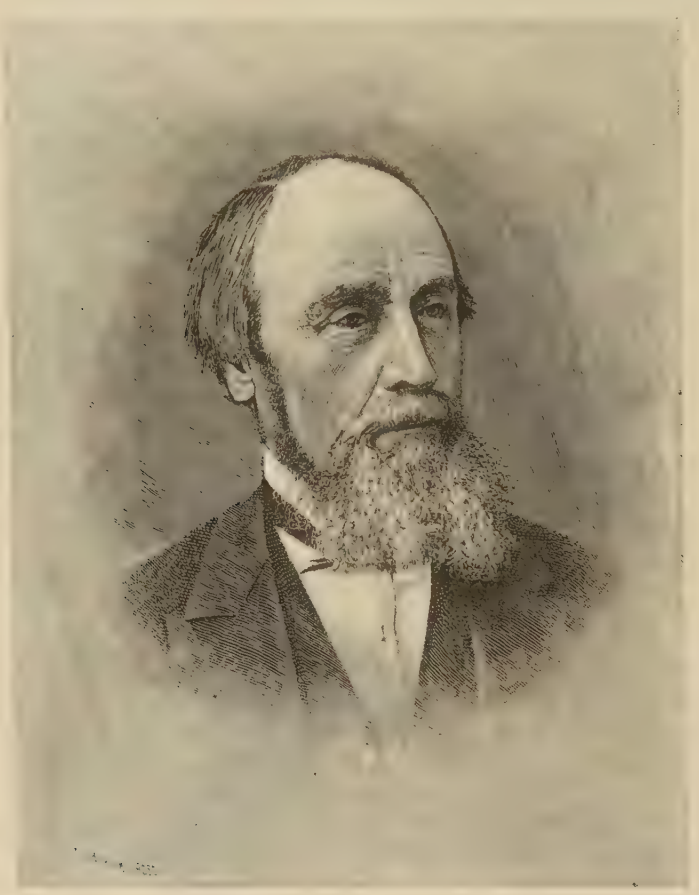
[1] Given in *Popular Science Monthly*, Dec., 1884, p. 152; and in the same periodical p. 264, is an account and portrait of Tylor.

[2] London, N. Y., 1865; 2d ed. somewhat enlarged, Lond., 1869; and later. Part of this work had appeared earlier in the *National Hist. Review*, 1861–64, including a paper (ch. 8) on No. Amer. Archæology in Jan., 1863, which was reprinted in the *Smithsonian Report* for 1862, and was translated in the *Revue Archéologique*, 1865.

This book of Lubbock's and Tylor's correlative work probably represent the best dealing with the subject in English; and some such book as Jas. A. Farrer's *Primitive Manners and Customs* (N. Y., 1879) will lead up to them with readers less studious. The English reader may find some comparative treatments in the English version of Waitz's *Introd. to Anthropology* (p. 284), etc.; much that is suggestive and in some way supplemental to Tylor and Lubbock in Wilson's *Prehistoric Man*: some vigorous and perhaps sweeping characterizations in Lesley's *Origin and Destiny of Man* (ch. 6); and other aspects in Winchell's *Preadamites* (ch. 26), Foster's *Prehistoric Races of the U. S.* (ch. 9), F. A. Allen in *Compte Rendu, Congrès des Américanistes*, 1877, vol. i. 79. Humboldt points out the non-pastoral character of the American tribes (*Views of Nature*, ii. 42). Helps' *Realmah* deals with the prehistoric condition of man.

* After a photograph.

the picture of races only archæologically known to us. This study of modern savage life, in arts, marriages, and relationships, morals, religion, and laws, is, as he holds, a necessary avenue to the knowledge of a condition of the early man, from which by various influences the race has advanced to what is called civilization. His result in this comparative study — not indeed covering all the phases of savage life — he made known in his *Origin of Civilization and the Primitive Condition of Man*.[1] While referring to Tylor's *Early Hist. of Mankind* as more nearly like his own than any existing treatise, but showing, as compared with his own book, "that no two minds would view the subject in the same manner," he instanced previous treatments of certain phases of the subject, like Müller's *Geschichte der Amerikanischen Urreligionen*, J. F. M'Lennan's *Primitive Marriage*,[2] and J. J. Backofen's *Das Mutterrecht* (Stuttgart, 1861); and even Lord Kames' *History of Man*, and Montesquieu's *Esprit des Lois*, notwithstanding the absence in them of much of the minute knowledge now necessary to the study of the subject. These data, of course, are largely obtained from travel-



SIR JOHN WILLIAM DAWSON.*

lers and missionaries, and Lubbock complains of their unsatisfactory extent and accuracy. "Travellers," he adds, "find it easier to describe the houses, boats, food, dress, weapons, and implements of savages than to understand their thoughts and feelings."

The main controversial point arising out of all this study is the one already adverted to, — whether man has advanced from savagery to his present condition, or has preserved, with occasional retrogressions, his original elevated character; and this causes the other question, whether the modern savage is the degenerate descendant of the same civilized first men. "There is no scientific evidence which would justify us," says Lubbock (*Prehist.*

[1] London, N. Y., 1870; 2d ed.; 3d ed., 1875; 4th ed., 1882, — each with additions and revisions.

[2] Cf. his *Studies in Anc. Hist.* He elucidates the early practice of capturing a wife, and controverts Morgan's *Ancient Society*. Cf. W. F. Allen in *Penn. Monthly*, June, 1880.

* After a photograph.

Times, 417), "in asserting that this kind of degradation applies to savages in general."[1] The most distinguished advocate of the affirmative of this proposition is Richard Whately, Archbishop of Dublin, both in his *Political Economy* and in his lecture on the *Origin of Civilization* (1855), in which he undertook to affirm that no nation, unaided by a superior race, ever succeeded in raising itself out of savagery, and that nations can become degraded. Lubbock, who, with Tylor, holds the converse of this proposition, answered Whately in an appendix to his *Origin of Civilization*, which was originally given as a paper at the Dundee meeting of the British Association.[2] The Duke of Argyle, while not prepared to go to the extent of Whately's views, attacked, in his *Primeval Man*, Lubbock's argument,[3] and was in turn reviewed adversely by Lubbock, in a paper read at the Exeter meeting of the same association (1869), which is also included in the appendix of his *Origin of Civilization*. Lubbock seems to show, in some instances at least, that the duke did not possess himself correctly of some of the views of his opponents.

In the researches of Tylor and Lubbock, and of all the others cited above, the American Indian is the source

MIGRATIONS.*

[1] Cf. also his "Early Condition of Man," in *British Ass. Proc.*, 1867; and Lyell's *Principles of Geology*, 11th ed., ii. 485; Dawkins in *No. Amer. Rev.*, Oct., 1883, p. 348.

[2] Darwin took Lubbock's side, *Descent of Man*, i. 174. Bradford, in his *American Antiquities*, held the barbarous American to be a degraded remnant of a society originally more cultivated; and a similar view was held by S. F. Jarvis in his *Discourse* before the New York Hist. Soc. (Proc., iii., N. Y., 1821). Cf. Büchner's *Man*, Eng. transl., 67, 276. Rawlinson (*Antiquity of man historically considered*) considers savagery a "corruption and degradation, — the result of adverse circumstances during a long period."

[3] N. Y., 1869; originally in *Good Words*, Mar.–June, 1868.

* A sketch map given in Dawson's *Fossil Men*, p. 48, showing his view of the probable lines of migration and distribution of the American tribes. Morgan (*Ancient Society*) makes what he calls three centres of subsistence, whence the migration proceeded which overran America. Cf. Hellwald in *Smithsonian Rept.*, 1866, p. 328. The question is more or less discussed in Latham's *Man and his migrations* (London, 1851); Chas. Pickering's *Men and their geog. distribution;* and Oscar Peschel's *Races of Man* (Eng. transl., London, 1876). On the passage from the valley of the Columbia to that of the Missouri, see Humboldt's *Views of Nature*, 35. Morgan (*No. Am. Rev.*, cix.) supposes the valley of the Columbia River to be the original centre where the streams diverged, and (*Systems of Consanguinity*, 251) says there are reasons for believing that the Shoshone migration was the last which left the Columbia valley, and that it was pending at the epoch of European colonization. Morgan's papers in the *No. Am. Rev.*, Oct. 1868 and Jan. 1870, are reprinted in Beach's *Indian Miscellany*, p. 158. On a general belief in a migration from the north, see *Congrès des Amér.* (1877), ii. 50, 51. L. Simonin, in "L'homme Américain, notes d'ethnologie et de linguistique sur les indiens des Etats-Unis," gives a map of the tribes of North America in the *Bull. de la Soc. de Géog.* Feb. 1870.

of many of their illustrations. Of all writers on this continent, Sir John Wm. Dawson in his *Fossil Men*, and Southall in his *Recent Origin of Man*, are probably the most eminent advocates of the views of Whately and Argyle, however modified, and both have declared it an unfounded assumption that the primitive man was a savage.[1] Morgan, in his *Ancient Society* (N. Y., 1877), has, on the other hand, sketched the lines of human progress from savagery through barbarism to civilization.

One of the defenders of the supposed Bible limits best equipped by reading, if not in the scientific spirit, has been a Virginian, James C. Southall, who published a large octavo in 1875, *The Recent Origin of Man as illustrated by geology and the modern science of prehistoric archæology* (Philad., 1875). Three years later, — leaving out some irrelevant matters as touching the antiquity of man, condensing his collations of detail, sparing the men of science an attack for what in his earlier volume he called their fickleness, and somewhat veiling his set purpose of sustaining the Bible record, — he published a more effective little book, *The Epoch of the Mammoth and the Apparition of Man upon Earth* (Philad., 1878). Barring its essentially controversial character, and waiving judgment on its scientific decisions, it is one of the best condensed accumulations of data which has been made. His belief in the literal worth of the Bible narrative is emphatic. He thinks that man, abruptly and fully civilized, appeared in the East, and gave rise to the Egyptian and Babylonian civilization, while the estrays that wandered westward are known to us by their remains, as the early savage denizens of Europe. To maintain this existence of the hunter-man of Europe within historic times, he rejects the prevailing opinions of the geologists and archæologists. He reverses the judgment that Lyell expresses (*Student's Elements of Geology*, Am. ed., 162) of the historical period as not affording any appreciable measure for calculating the number of centuries necessary to produce so many extinct animals, to deepen and widen valleys, and to lay so deep stalagmite floors, and says it does. He contends that the stone age is not divided into the earlier and later periods with an interval, but that the mingling of the kinds of flints shows but different phases of the same period,[2] and that what others call the palæolithic man was in reality the quaternary man, with conditions not much different from now.[3] The time when the ice retreated from the now temperate regions he holds to have been about 2000 B. C., and he looks to the proofs of the action of which traces are left along the North American great lakes, as observed by Professor Edmund Andrews[4] of Chicago, to confirm his judgment of the Glacial age being from 5,300 to 7,500 years ago.[5] He claims that force has not been sufficiently recognized as an element in geological action, and that a great lapse of time was not necessary to effect geological changes (*Ep. of the M.*, 194).[6] He thinks the present drift of opinion, carrying back the appearance of man anywhere from 20,000 to 9,000,000 years, a mere fashion. The gravel of the Somme has been, he holds, a rapid deposit in valleys already formed and not necessarily old. The peat beds were a deposit from the flood that followed the glacial period, and accumulated rapidly (*Ep. of the M.*, ch. 10). The extinct animals found with the tools of man in the caves simply show that such beasts survived to within historic times, as seems everywhere apparent as regards the mastodon when found in America. The stalagmites of the caves are of unequal growth, and it is an assumption to give them uniformly great age. The finely worked flints found among those called palæolithic; the skilfully free drawings of the cave-men; the bits of pottery discovered with the rude flints, and the great similarity of the implements to those in use to-day among the Eskimos; the finding of Roman coin in the Danish shell heaps and an English one in those of America (*Proc. Philad. Acad. Nat. Sci.*, 1866, p. 291), — are all parts of the argument which satisfies him that the archæologists have been hasty and inconclusive in their deductions. They in turn will dispute both his facts and conclusions.[7]

[1] Dawson's *Fossil Men and their modern representatives* (London, 1880, 1883) is "an attempt to illustrate the characters and conditions of prehistoric men in Europe by those of the American races." A conservative reliance on the biblical record, as long understood, characterizes Dawson's usual speculations. Cf. his *Nature and the Bible*, his *Story of the Earth*, his *Origin of the World*, and his *Address* as president of the geological section of the Amer. Association in 1876. He confronts his opponents' views of the long periods necessary to effect geographical changes by telling them that in historic times "the Hyrcanian ocean has dried up and Atlantis has gone down."

[2] Dawson (*Fossil Men*, 218) says: "I think that American archæologists and geologists must refuse to accept the distinction of a palæolithic from a neolithic period until further evidence can be obtained."

[3] These are very nearly the views of Winchell in his *Preadamites*, p. 420.

[4] Cf. his papers in *Methodist Quarterly*, xxxvi. 581; xxxvii. 29.

[5] This is also considered important evidence by Dawson, as well as Winchell's estimate, in his *5th Report, Minnesota Geol. Survey* (1876), of the 8,000 or 9,000 years necessary for the falls of St. Anthony to have worked back from Fort Snelling. Edw. Fontaine's *How the World was peopled* (N. Y., 1872) is another expression of this recent-origin belief.

[6] This cataclysmic element of force, as opposed to the gradual uniformity theory of Lyell, finds expounders in Huxley and Prestwich, and is the burden of H. H. Howorth's *Mammoth and the Flood* (London, 1887) in its palæontological and archæological aspects, its geological aspects having been touched by him so far only in some papers in the *Geological Mag.* This great overthrow of the gigantic animals, during which the man intermediate between the palæolithic and neolithic age lived, was not universal, so that the less unwieldy species largely saved themselves; and it was in effect the scriptural flood, of which traditions were widely preserved among the North American tribes (*Mammoth and the Flood*, 307, 444).

[7] Southall answered his detractors in the *Methodist Quarterly*, xxxvii. 225. Geo. Rawlinson (*Antiq. of Man historically considered, Present Day Tract, No. 9*, or *Journal of Christian Philosophy*, April, 1883) speaks of the antiquity of prehistoric man as involving considerations "to a large extent speculative" as to limits, "that are to be measured not so much by centuries as by millenia." He condenses the arguments for a recent origin of man.

Southall's arraignment of the opinions generally held may introduce us to a classification of the data upon which archæologists rely to reach conclusions upon the antiquity of man, and over some of which there is certainly no prevailing consensus of opinion. We may find a condensed summary of beliefs and data respecting the antiquity of man in J. P. Maclean's *Manual of the Antiquity of Man* (Cincinnati, revised ed., 1877; again, 1880).[1] The independent view and conservative spirit are placed respectively in juxtaposition in J. P. Lesley's *Origin and Decline of Man* (ch. 3), and in Dawson's *Fossil Men* (ch. 8).[2] The opinions of leading English archæologists are found in Lubbock's *Prehistoric Times* (ch. 12), Wallace's *Tropical Nature* (ch. 7), and Huxley's "Distribution of Races in Relation to the Antiquity of Man," in *Internat. Cong. of Prehist. Archæol. Trans.* (1868). Dawkins has given some recent views in *The Nation*, xxvi. 434, and in *Kansas City Review*, vii. 344.[3] Not to refer to special phases, the French school will be found represented in Nadaillac's *Les Premiers Hommes* (ii. ch. 13); in Gabriel de Mortillet's *La préhistorique antiquité de l'homme* (Paris, 1883); Hamy's *Précis de paléontologie humaine;* Le Hon's *L'homme fossile* (1867); Victor Meunier's *Les Ancêtres d'Adam* (Paris, 1875); Joly's *L'homme avant métaux* (Eng. transl. *Man before Metals*, N. Y., 1883); *Revue des Questions historiques* (vol. xvi.). The German school is represented in Haeckel's *Natürliche Schöpfungsgeschichte;* Waitz's *Anthropologie;* Carl Vogt's *Lectures on Man* (Eng. transl., Lond., 1864); and L. Büchner's *Der Mensch und seine Stellung in der Natur* (2d ed., Leipzig, 1872; or W. S. Dallas's Eng. translation, Lond., 1872). The history of the growth of geological antagonism to the biblical record as once understood, and the several methods proposed for reconciling their respective teaching, is traced concisely in the article on geology in M'Clintock and Strong's *Cyclopædia*, with references for further examination. The views there given are those propounded by Chalmers in 1804, that the geological record, ignored in the account of Genesis, finds its place in that book between the first and second verses,[4] which have no dependence on one another, and that the biblical account of creation followed in six literal days. What may be considered the present theological attitude of churchmen may be noted in *The Speaker's Commentary* (N. Y. ed., 1871, p. 61).

The question of the territorial connection of America with Asia under earlier geological conditions is necessarily considered in some of the discussions on the transplanting of the American man from the side of Asia.

Otto Caspari in his *Urgeschichte der Menschheit* (Leipzig, 1873), vol. i., gives a map of Asia and America in the post-tertiary period, as he understands it, which stretches the Asiatic and African continents over a large part of the Indian Ocean; and in this region, now beneath the sea, he places the home of the primeval man, and marks the lines of migration east, north, and west. This view is accepted by Winchell in his *Preadamites* (see his map). Haeckel (*Nat. Schöpfungsgeschichte*, 1868, 1873; Eng. transl. 1876) calls this region "Lemuria" in his map. Caspari places large continental islands between this region and South America, which rendered migration to South America easy. The eastern shore of the present Asia is extended beyond the Japanese islands, and similar convenient islands render the passage by other lines of immigration easy to the regions of British Columbia and of Mexico. (Cf. Short, 507; Baldwin, App.) Howorth, *Mammoth and the Flood*, supposes a connection at Behring's Straits. The supposed similarity of the flora of the two shores of the Pacific has been used to support this theory, but botanists say that the language of Hooker and Gray has been given a meaning they did not intend. It is opposed by many eminent geologists. A. R. Wallace (*Journal Amer. Geog. Soc.*, xix.) finds no ground to believe that any of the oceans contain sunken continents. (Cf. his *Geographical Distribution of Animals* and his *Malay Archipelago.*) James Croll in his *Climate and Cosmology* (p. 6) says: "There is no geological evidence to show that at least since Silurian times the Atlantic and Pacific were ever in their broad features otherwise than they now are."[5] Hyde Clarke has examined the legend of Atlantis in reference to protohistoric communication with America, in *Royal Hist. Soc. Trans.*, n. s., iii. p. 1.[6]

The arguments for the great antiquity of man[7] are deduced in the main from the testimony of the river

[1] There is a cursory survey in John Scoffern's *Stray leaves of science and folk lore* (London, 1870).

[2] Cf. his papers in *Leisure Hour*, xxiii. 740, 766; xxvi. 54.

[3] Current periodical views can be traced in Poole's *Index* (vols. i. and ii.) under "Man," "Races," "Prehistoric," etc.

The views of the cosmogonists, running back to the beginning of the sixteenth century, are followed down to the birth of modern geology in Pattison's *The Earth and the Word* (Lond., 1858), and condensed in M'Clintock & Strong's *Cyclopædia* (iii. 795).

[4] *Verse* 1. In the beginning God created the heaven and the earth.

Verse 2. And the earth was without form and void, etc.

[5] Cf. also J. D. Whitney's *Climatic Changes.* The present proportion of land to water is reckoned as four is to eleven. The ocean's average depth is variously estimated at from eleven to thirteen times that of the average elevation of land above water, or as 11,000 or 13,000 feet is to 1,000 feet. The bulk of water on the globe is computed at thirty-six times the cubic measurement of the land above water (*Ibid.* 194, 209).

[6] For an extended discussion of the Atlantis question, see *ante*, ch. 1.

[7] It is enough to indicate the necessary correlation of this subject with the transformation theory of J. B. A. Lamarck as enunciated in his *Philosophie Zoologique* (Paris, 1809; again, 1873), which Cuvier opposed; and with the new phase of it in what is called Darwinism, a theory of the survival of the fittest, leading ultimately to man. Lyell (*Principles of Geology*, 11th ed., ii. 495) presents the diverse sides of the question, which is one hardly germane to our present purpose.

gravels, the bone caves, the peat deposits, the shell heaps, and the Lacustrine villages, for the mounds and other relics of defence, habitation, and worship are very likely not the records of a great antiquity. The whole field is surveyed with more fullness than anywhere else, and with a faith in the geological antiquity of the race, in Sir Charles Lyell's *Geological Evidences of the Antiquity of Man*.[1] With as firm a belief in the integrity of the biblical record, and in its not being impugned by the discoveries or inductions of science, we find a survey in Southall's *Recent Origin of Man*. These two books constitute the extremes of the methods, both for and against the conservative interpretation of the Bible. The independent spirit of the scientist is nowhere more confidently expressed than by J. P. Lesley (*Man's Origin and Destiny*, Philad., 1868, p. 45), who says: "There is no alliance possible between Jewish theology and modern science. . . . Geologists have won the right to be Christians without first becoming Jews." Southall[2] interprets this spirit in this wise: "I do not recollect that the *Antiquity of Man* ever recognizes that the book of Genesis is in existence; and yet every one is perfectly conscious that the author has it in mind, and is writing at it all the time."[3] The entire literature of the scientific interpretation shows that the canons of criticism are not yet secure enough to prevent the widest interpretations and inferences.

The intimations which are supposed to exist in the Bible of a race earlier than Adam have given rise to what is called the theory of the Preadamites, and there is little noteworthy upon it in European literature back of Isaac de La Peyrère's *Praeadamitae* (Paris and Amsterdam, 1655), whose views were put into English in *Man before Adam* (London, 1656).[4] The advocates of the theory from that day to this are enumerated in Alexander Winchell's *Preadamites* (Chicago, 1880), and this book is the best known contribution to the subject by an American author. It is his opinion that the aboriginal American, with the Mongoloids in general, comes from some descendant of Adam earlier than Noah, and that the black races come from a stock earlier than Adam, whom Cain found when he went out of his native country.[5]

The investigations of the great antiquity of man in America fall far short in extent of those which have been given to his geological remoteness in Europe; and yet, should we believe with Winchell that the American man represents the pre-Adamite, while the European man does not, we might reasonably hope to find in America earlier traces of the geological man, if, as Agassiz shows, the greater age of the American continent weighs in the question.[6]

The explicit proofs, as advanced by different geologists, to give a great antiquity to the American man, and perhaps in some ways greater than to the European man,[7] may now be briefly considered in detail.

Oldest of all may perhaps be placed the gold-drift of California, with its human remains, and chief among them the Calaveras skull, which is claimed to be of the Pliocene (tertiary) age; but it must be remembered that Powell and the government geologists call it quaternary. It was in February, 1866, that in a mining shaft in Calaveras County, California, a hundred and thirty feet below the surface, a skull was found imbedded in gravel, which under the name of the Calaveras skull has excited much interest. It was not the first time that human remains had been found in these California gravels, but it was the first discovery that attracted

[1] London, 1863, 3 eds., each enlarged; Philad., 1863. In his final edition Lyell acknowledges his obligations to Lubbock's *Prehistoric Man* and John Evans's *Anc. Stone Implements*. His final edition is called: *The geological evidences of the antiquity of man, with an outline of glacial and post-tertiary geology and remarks on the origin of species with special reference to man's first appearance on the earth*. 4th ed., revised (London, 1873).

[2] *Recent Origin of Man*, p. 10.

[3] Another way of looking at it gives reasons for this omission: "The first chapter of Genesis is not a geological treatise. It is absolutely valueless in geological discussion, and has no value whatever save as representing what the Jews borrowed from the Babylonians, and as preserving for us an early cosmology" (Howorth's *Mammoth and the Flood*, Lond., 1887, p. ix). Between Lyell and Gabriel de Mortillet (*La préhistorique Antiquité de l'Homme*, Paris, 1883) on the one hand and Southall on the other, there are the more cautious geologists, like Prestwich, who claim that we must wait before we can think of measuring by years the interval from the earliest men. (Cf. "Theoretical considerations on the drift containing implements," in *Roy. Soc. Philos. Trans.*, 1862.)

[4] Cf. *Amer. Antiq. Soc. Proc.*, Apr., 1873, p. 33.

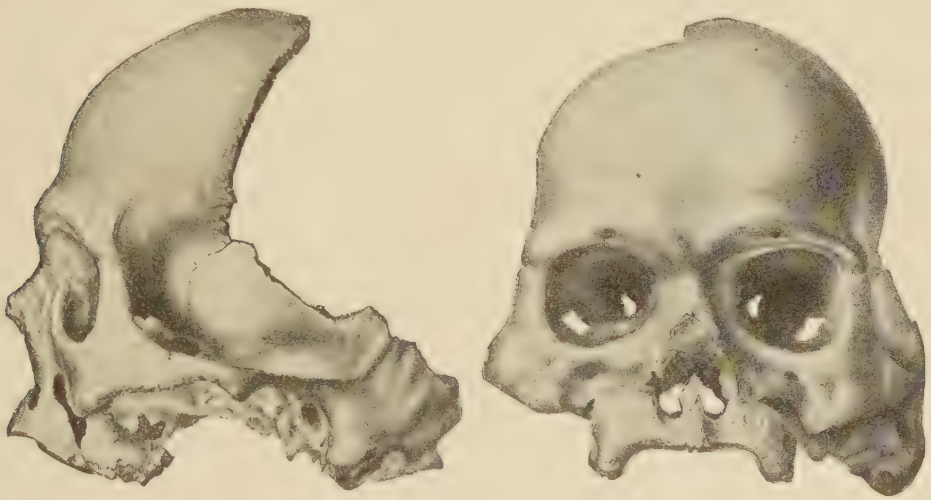
[5] Winchell's book is an enlargement of an article contributed by him to M'Clintock and Strong's *Cyclopædia of Biblical Literature*, etc. (vol. viii., 1879), — the editors of which, by their foot-notes, showed themselves uneasy under some of his inferences and conclusions, which do not agree with their conservative views.

[6] Louis Agassiz advanced (1863) this view of the first emergence of land in America, in the *Atlantic Monthly*, xi. 373; also in *Geol. Sketches*, p. 1, — marking the Laurentian hills along the Canadian borders of the United States as the primal continent. Cf. Nott and Gliddon's *Types of Mankind*, ch. 9. Mortillet holds that so late as the early quaternary period Europe was connected with America by a region now represented by the Faröes, Iceland, and Greenland. Some general references on the antiquity of man in America follow: — Wilson, *Prehistoric Man*. Short's *No. Amer. of Antiq.*, ch. 2. Nadaillac, *Les Premiers Hommes*, ii. ch. 8. Foster, *Prehistoric Races of the U. S.*, and *Chicago Acad. of Sciences, Proc.*, i. (1869). Joly, *Man before Metals*, ch. 7. Emil Schmidt, *Die ältesten Spuren des Menschen in Nord Amerika* (Hamburg, 1887). A. R. Wallace in *Nineteenth Century* (Nov., 1887, or *Living Age*, clxxv. 472). *Pop. Science Monthly*, Mar., 1877. An epitome in *Science*, Apr. 3, 1885, of a paper by Dr. Kollmann in the *Zeitschrift für Ethnologie*. F. Larkin, *Ancient Man in America* (N. Y., 1880). The biblical record restrains Southall in all his estimates of the antiquity of man in America, as shown in his *Recent Origin of Man*, ch. 36, and *Epoch of the Mammoth*, ch. 25.

[7] Hugh Falconer (*Palæontological Memoirs*, ii. 579) says: "The earliest date to which man has as yet been traced back in Europe is probably but as yesterday in comparison with the epoch at which he made his appearance in more favored regions."

notice. It was not seen *in situ* by a professional geologist, and a few weeks elapsed before Professor Josiah Dwight Whitney, then state geologist of California, visited the spot, and satisfied himself that the geological conditions were such as to make it certain that the skull and the deposition of the gravel were of the same age. The relic subsequently passed into the possession of Professor Whitney, and the annexed cut is reproduced from the careful drawing made of it for the *Memoirs of the Museum of Comp. Zoölogy* (Harvard University), vol. vi. He had published earlier an account in the *Revue d'Anthropologie* (1872), p. 760.[1] This interesting relic is now in Cambridge, coated with thin wax for preservation, but this coating interferes with any satisfactory photograph. The volume of *Memoirs* above named is made up of Whitney's *Auriferous Gravels of the Sierra Nevada of California* (1880), and at p. ix he says: "There will undoubtedly be much hesitancy on the part of anthropologists and others in accepting the results regarding the Tertiary Age of man, to which our investigations seem so clearly to point." He says that those who reject the evidence of the Calaveras skull because it was not seen *in situ* by a scientific observer forget the evidence of the fossil itself; and he adds that since 1866 the other evidence for tertiary man has so accumulated that "it would not be materially weakened by dropping that furnished by the Calaveras skull itself."

What Whitney says of the history and authenticity of the skull will be found in his paper on "Human remains and works of art of the gravel series," in *Ibid.* pp. 258–288. His conclusions are that it shows the existence of man with an extinct fauna and flora, and under geographical and physical conditions differing from the present, — in the Pliocene age certainly. This opinion has obtained the support of Marsh and Le Conte and other eminent geologists. Schmidt (*Archiv für Anthropologie*) thinks it signifies a pre-glacial man. Winchell (*Preadamites*, 428) says it is the best authenticated evidence of Pliocene man yet adduced.



CALAVERAS SKULL. (*Front and side view.*)

On the contrary, there are some confident doubters. Dawkins (*No. Am. Rev.*, Oct., 1883) thinks that all but a few American geologists have given up the Pliocene man, and that the chances of later interments, of accidents, of ancient mines, and the presence of skulls of mustang ponies (introduced by the Spaniards) found in the same gravels, throw insuperable doubts. "Neither in the new world nor the old world," he says, "is there any trace of Pliocene man revealed by modern discovery." Southall and all the Bible advocates of course deny the bearing of all such evidence. Dawson (*Fossil Men*, 345) thinks the arguments of Whitney inconclusive. Nadaillac (*L'Amérique préhistorique*, 40, with a cut, and his *Les Premiers Hommes*, ii. 435) hesitates to accept the evidence, and enumerates the doubters.[2]

Footprints have been found in a tufa bed, resting on yellow sand, in the neighborhood of an extinct volcano, Tizcapa, in Nicaragua. One of the prints is shown in the annexed cut, after a representation given by Dr. Brinton in the *Amer. Philosoph. Soc. Proc.* (xxiv. 1887, p. 437). Above this tufa bed were fourteen distinct strata of deposits before the surface soil was reached. Geologists have placed this yellow sand, bearing shells, from the post-Pliocene to the Eocene. The seventh stratum, going downwards, had remains of the mastodon.[3]

[1] Cf. also Putnam's *Report* in Wheeler's Survey, 1879, p. 11.

[2] Cf. H. H. Bancroft, iv. 703; Short, 125, etc.

[3] Dr. Brinton concludes that since the region is one of a rapid deposition of strata, the tracks may not be older than quaternary. The track here figured was 9½ inches long; some were 10 inches. The maximum stride was 18 inches. Cf. Dr. Earl Flint in *Amer. Antiquarian* (vi. 112), Mar.,

Some ancient basket work discovered at Petit Anse Island, in Louisiana, has been figured in the *Chicago Acad. of Sciences, Transactions* (i. part 2). Cf. E. W. Hilgard, in *Smithsonian Contributions*, no. 248.

Foster rather strikingly likens what we know of the history of the human race to the apex of a pyramid, of which we know neither the height nor extent of base. Our efforts to trace man back to his beginning would be like following down the sides of that pyramid till it reaches a firm base, we know not where. Many geologists believe in a great ice-sheet which at one time had settled upon the northern parts of America, and covered it down to a line that extends across Pennsylvania, Ohio, and westerly in a direction of some variableness. There are some, like Sir William Dawson,[1] who reject the evidence that persuades others. Prof. Whitney (*Climatic Changes*, 387) holds that it was a local phenomenon confined in America to the northeastern parts. The advocates look to Dr. James Geikie[2] as having correlated the proofs of the proposition as well as any, while writers like Howorth[3] trace the resulting phenomena largely to a flood.

How long ago this was, the cautious geologist does not like to say;[4] nor is he quite ready to aver what it

ANCIENT FOOTPRINT FROM NICARAGUA.

1884, and (vii. 156) May, 1885; *Peabody Mus. Repts.*, 1884, p. 356; 1885, p. 414; *Amer. Ant. Soc. Proc.*, 1884, p. 92.

[1] *Story of the Earth and Man.*

[2] *The Great Ice-Age, and its Relations to the Antiquity of Man* (1874).

[3] *Mammoth and the Flood.*

[4] "We cannot fix a date, in the historical sense, for events which happened outside history, and cannot measure the antiquity of man in terms of years." Dawkins in *No. Am. Rev.*, Oct., 1883, p. 338. Tylor (*Early Hist. of Mankind*, 197) says: "Geological evidence, though capable of showing the lapse of vast periods of time, has scarcely admitted of these periods being brought into definite chronological terms." Prestwich (*On the geol. position and age of flint-implement-bearing beds*, London, 1864, — from the *Roy. Soc. Phil. Trans.*) says: "However we extend our present chronology with respect to the first appearance of men, it is at present unsafe and premature to count by hundreds of thousands of years." Southall (*Recent Origin of Man*, ch. 33) epitomizes the extreme views of the advocates of glaciation in the present temperate zone.

all means.[1] Perhaps, as some theorize, this prevailing ice showed the long winter brought about by the precession of the equinoxes, as has long been a favorite belief, with the swing of ten thousand years, more or less, from one extreme to the other.[2]

Others believe that we must look back 200,000 years, as James Croll[3] and Lubbock do, or 800,000 and more, as Lyell did at first, and find the cause in the variable eccentricity of the earth's orbit, which shall account for all the climatic changes since the dawn of what is called the glacial epoch, accompanying the deflection of ocean currents, as Croll supposes, or the variations in the disposition of sea and land, as Lyell imagines.[4] This great ice-sheet, however extensive, began for some reason to retreat, at a period as remote, according as we accept this or the other estimate, as from ten thousand to a hundred thousand years.

That the objects of stone, shaped and polished, which had been observed all over the civilized world, were celestial in origin seems to have been the prevalent opinion,[5] when Mahudel in 1723 and even when Buffon in 1778 ventured to assign to them a human origin.[6]

In the gravels which were deposited by the melting of this more or less extended ice-sheet, parts of the human frame and the work of human hands have been found, and mark the anterior limit of man's residence on the globe, so far as we can confidently trace it.[7] Few geologists have any doubt about the existence of human relics in these American glacial drifts, however widely they may differ about the age of them.[8]

It was in the *American Naturalist* (Mar. and Ap., 1872) that Dr. C. C. Abbott made an early communi-

[1] Cf. Louis Agassiz, *Geological Sketches* (1865), p. 210; 2d series (1886), p. 77.

[2] J. Adhémer, *Revolutions de la Mer*, who advocates this theory, connects with it the movement of the apsides, and thinks that it is the consequent great accumulation of ice at the north pole which by its weight displaces the centre of gravity; and as the action is transferred from one pole to the other, the periodic oscillation of that centre of gravity is thus caused. The theory no doubt borrows something of its force with some minds from the great law of mutability in nature. That it is a grand field for such theorizers as Lorenzo Burge, his *Preglacial Man and the Aryan Race* shows; but authorities like Lyell and Sir John Herschel find no sufficient reason in it for the great ice-sheet which they contend for. Cf. H. Le Hon's *Influence des lois cosmiques sur la climatologie et la géologie* (Bruxelles, 1868). W. B. Galloway's *Science and Geology in relation to the Universal Deluge* (Lond., 1888) points out what he thinks the necessary effects of such changes of axis. J. D. Whitney (*Climatic changes of later geological times, Mem. Mus. Comp. Zoöl.*, vii. 392, 394) disbelieves all these views, and contends that the most eminent astronomers and climatologists are opposed to them.

[3] Of the manifold reasons which have been assigned for these great climatic changes (Lubbock, *Prehistoric Times*, 391, and Croll, *Discussions*, enumerates the principal reasons) there is at least some considerable credence given to the one of which James Croll has been the most prominent advocate, and which points to that reduction of the eccentricity of the earth's orbit which in 22,000 years will be diminished from the present scale to one sixth of it, or to about half a million miles. This change in the eccentricity induces physical changes, which allow a greater or less volume of tropical water to flow north. In this way the once mild climate of Greenland is accounted for (Wallace's *Island Life*). Croll first advanced his views in the *Philosophical Mag.*, Aug., 1864; but he did not completely formulate his theory till in his *Climate and time in their geological relations, a theory of secular changes of the earth's climate* (N. Y., 1875). It gained the acquiescence of Lyell and others; but a principal objector appeared in the astronomer Simon Newcomb (*Amer. Jl. of Sci. and Arts*, April, 1876; Jan., 1884; *Philosoph. Mag.*, Feb., 1884). Croll answered in *Remarks* (London, 1884), but more fully in a further development of his views in his *Discussions on Climate and Cosmology* (N. Y., 1886). Whitney's *Climatic Changes* argues on entirely different grounds.

[4] *Principles of Geology*, ch. 10–13, where he gives a secondary place to the arguments of Croll.

[5] Emile Cartailhac's *L'Age de pierre dans les souvenirs et superstitions populaires* (Paris, 1877).

[6] Joly, *L'Homme avant les métaux*, or in the English transl., *Man before Metals*, ch. 2. Nadaillac (*Les Premiers Hommes*, i. 127) reproduces Mahudel's cuts.

[7] Foster, *Prehistoric Races*, 50, notes some obscure facts which might indicate that man lived back of the glacial times, in the Miocene tertiary period. These are the discoveries associated with the names of Desnoyers and the Abbé Bourgeois, and familiar enough to geologists. They have found little credence. Cf. Lubbock's *Prehistoric Times*, 410, and his *Scientific Lectures*, 140; Büchner's *Man*, p. 31; Nadaillac's *Les Premiers Hommes*, ii. 425; and *L'Homme tertiaire* (Paris, 1885); Peschel's *Races of Men*, p. 34; Edward Clodd in *Modern Review*, July, 1880; Dawkins' *Address*, Salford, 1877, p. 9; Joly, *Man before Metals*, 177. Quatrefages (*Human Species*, N Y., 1879, p. 150) assents to their authenticity. Many of these look to the later tertiary (Pliocene) as the beginning of the human epoch; but Dawkins (*No. Am. Rev.*, cxxxvii. 338; cf. his *Early Man in Britain*, p. 90), as well as Huxley, say that all real knowledge of man goes not back of the quaternary. Cf. further, Quatrefages, *Introd. à l'étude des races humaines* (Paris, 1887), p. 91; and his *Nat. Hist. Man* (N. Y., 1874), p. 44.

Winchell (McClintock and Strong's *Cyclopædia*, viii. 491–2, and in his *Preadamites*) concisely classes the evidences of tertiary man as "Preglacial remains erroneously supposed human," and "Human remains erroneously supposed preglacial;" but he confines these conclusions to Europe only, allowing that the American non-Caucasian man might, perhaps, be carried back (p. 492) into the tertiary age.

Cf. on the tertiary (Pliocene) man, E. S. Morse in *Amer. Naturalist*, xviii. 1001,—an address at the Philad. meeting, Am. Asso. Adv. Science and his earlier paper in the *No. Amer. Rev.*; C. C. Abbott in *Kansas City Rev.*, iii. 413 (also see iv. 84, 326); *Cornhill Mag.*, li. 254 (also in *Pop. Sci. Monthly*, xxvii. 103, and *Eclectic Mag.*, civ. 601). Dr. Morton believed that the Eocene man, of the oldest tertiary group, would yet be discovered. Agassiz, in 1865 (*Geol. Sketches*, 200), thought the younger naturalists would live to see sufficient proofs of the tertiary man adduced. S. R. Pattison (*Age of Man geologically considered* in *Present Day Tract, no. 13*, or *Journal of Christ. Philos.* July, 1883) does not believe in the tertiary man, instancing, among other conclusions, that no trace of cereals is found in the tertiary strata, and that these strata show other conditions unfavorable to human life. His conclusions are that man has existed only about 8,000 years, and that it is impossible for geological science at present to confute or disprove it. In his view man appeared in the first stage of the quaternary period, was displaced by floods in the second, and for the third lived and worked on the present surface.

[8] Lyell's *Antiquity of Man*, 4th ed., ch. 18. Daniel

cation respecting the discovery of rude human implements in the glacial gravels[1] of the Delaware valley, and since then the Trenton gravels have been the subject of much interest. The rudeness of the flints has repeatedly raised doubts as to their artificial character; but Wilson (*Prehistoric Man*, i. 29) says that it is impossible to find in flints broken for the road, or in any other accumulation of rocky débris, a single specimen that looks like the rudest implement of the drift. Experts attest the exact correspondence of these Trenton tools with those of the European river drift. Abbott has explained the artificial cleavages of stone in the *American Antiquarian* (viii. 43). There are geologists like Shaler who question the artificial character of the Trenton implements. From time to time since this early announcement, Dr. Abbott has made public additional evidence as he has accumulated it, going to show, as he thinks, that we have in these deposits of the glacial action the signs of men contemporary with the glacial flow, and earlier than the red Indian stock of historic times.[2] He summarizes the matter in his "Palæolithic implements of a people on the Atlantic coast anterior to the Indians," in his *Primitive Industry* (1882).[3]

Some discoveries of human bones in the loess or loam of the Mississippi Valley have not been generally accepted. Lyell (*Second Visit*, ii. 197; *Antiq. of Man*, 203) suspends judgment, as does Joseph Leidy in his *Extinct Mammalia of North America* (p. 365).

The existence of man in western Europe with extinct animals is a belief that, from the incredulity which accompanied the discovery by Kemp in London, in 1714, of a stone hatchet lying in contiguity to some elephant's teeth,[4] has long passed into indisputable fact, settled by the exploration of cave and shell heaps.[5] In North America, this conjunction of man's remains with those of the mastodon is very widely spread.[6] The

Wilson, on "The supposed evidence of the existence of interglacial man," in the *Canadian Journal*, Oct., 1877. Nadaillac's *L'Amérique préhistorique*, ch. 1; *Les Premiers Hommes*, ii. ch. 10; and his *De la période glaciaire et de l'existence de l'homme durant cette période en Amérique* (Paris, 1884), extracted from *Matériaux*, etc. G. F. Wright on "Man and the glacial period in America," in *Mag. West. Hist.* (Feb., 1885), i. 293 (with maps), and his "Preglacial man in Ohio," in the *Ohio Archæol. and Hist. Quart.* (Dec., 1887), i. 251. Miss Babbitt's "Vestiges of glacial man in Minnesota," in the *Amer. Naturalist*, June, July, 1884, and *Amer. Asso. Adv. Sci. Proc.* xxxii. 385.

[1] Howorth, *Mammoth and the Flood*, 323, considers them flood-gravels instead, in supporting his thesis.

[2] *Pop. Science Monthly*, xxii. 315. *Smithsonian Rept.*, 1874–75. Reports of progress, etc., in the *Peabody Museum Reports*, nos. x. and xi. (1878, 1879). Prof. N. S. Shaler accompanies the first of these with some comments, in which he says: "If these remains are really those of man, they prove the existence of interglacial man on this part of our shore." He is understood latterly to have become convinced of their natural character. J. D. Whitney and Lucien Carr agree as to their artificial character (*Ibid.* xii. 489). Cf. Abbott on Flint Chips (refuse work) in the *Peab. Mus. Rept.*, xii. 506; H. W. Haynes in *Boston Soc. Nat. Hist. Proc.*, Jan., 1881; F. W. Putnam in *Peab. Mus. Rept.*, no. xiv. p. 23; Henry Carvell Lewis on *The Trenton gravel and its relation to the antiquity of man* (Philad., 1880); also in the *Proceedings of the Academy of Natural Sciences of Philadelphia* (1877–1879, pp. 60–73; and 1880, p. 306). Abbott has also registered the discovery of a molar tooth (*Peabody Mus. Rept.*, xvi. 177), and the under jaw of a man (*Ibid.* xviii. 408, and *Matériaux*, etc., xviii. 334.) On recent discoveries of human skulls in the Trenton gravels, see *Peab. Mus. Rept.* xxii. 35. The subject of the Trenton-gravels man, and of his existence in the like gravels in Ohio and Minnesota, was discussed at a meeting of the Boston Soc. of Nat. Hist., of which there is a report in their *Proceedings*, vol. xxiii. These papers have been published separately: *Palæolithic man in eastern and central North America* (Cambridge, 1888). CONTENTS: — Putnam, F. W. Comparison of palæolithic implements. — Abbott, C. C. The antiquity of man in the valley of the Delaware. — Wright, G. F. The age of the Ohio gravel-beds. — Upham, Warren. The recession of the ice-sheet in Minnesota in its relation to the gravel deposits overlying the quartz implements found by Miss Babbitt at Little Falls, Minn. — Discussion and concluding remarks, by H. W. Haynes, E. S. Morse, F. W. Putnam. Cf. also *Amer. Antiquarian*, Jan., 1888, p. 46; Th. Belt's *Discovery of stone implements in the glacial drift of No. America* (Lond., 1878, and *Q. Jour. Sci.* xv. 63; Dawkins in *No. Am. Rev.*, Oct., 1883, p. 347.

[3] Cf. also *Peabody Mus. Repts.*, xix. 492; *Science*, vii. 41; *Boston Soc. Nat. Hist. Proc.*, xxi. 124; *Matériaux*, etc. xviii. 334; *Philad. Acad. Nat. Sciences, Proc.* (1880, p. 306). Abbott refers to the contributions of Henry C. Lewis of the second Geol. Survey of Penna. (*Proc. Philad. Acad. Nat. Sciences*, and "The antiquity and origin of the Trenton gravels," in Abbott's book), and of George H. Cook in the *Annual Reports* of the New Jersey state geologist. Abbott has recently summarized his views on the "Evidences of the Antiquity of Man in Eastern North America," in the *Am. Asso. Adv. Sci. Proc.*, xxxvii., and separately (Salem, 1888).

[4] Figuier, *Homme Primitif*, introd.

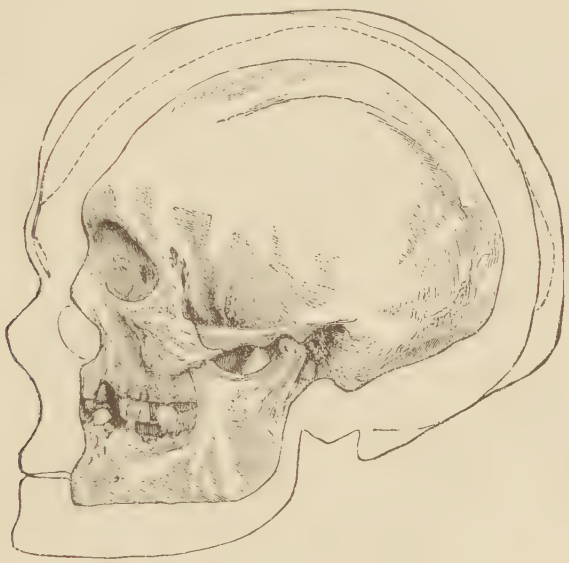
[5] The references are very numerous; but it is enough to refer to the general geological treatises: Vogt's *Lectures on Man*, nos. 9, 10; Nadaillac's *Les Prem. Hommes*, ii. 7; Dawkins in *Intellectual Observer*, xii. 403; and Ed. Lartet, *Nouvelles recherches sur la coexistence de l'homme et des grands mammifères fossiles, réputés caractéristiques de la dernière période geologique*, in the *Annales des Sciences Naturelles*, 4e série, xv. 256. Buffon first formulated the belief in extinct animals from some mastodon bones and teeth sent to him from the Big Bone Lick in Kentucky, about 1740, and Cuvier first applied the name mastodon, though from the animal's resemblance to the Siberian mammoth it has sometimes been called by the latter name. There are in reality the fossil remains of both mastodon and mammoth found in America. On the bones from the Big Bone Lick see Thomson's *Bibliog. Ohio*, no. 44.

[6] Wilson's *Prehist. Man*, i. ch. 2; *Proc. Amer. Acad. Nat. Sciences*, July, 1859; *Amer. Journal of Sci. and Arts*, xxxvi. 199; cix. 335; *Pop. Sci. Rev.*, xiv. 278; A. H. Worthen's *Geol. Survey, Illinois* (1866), i. 38; Haven in *Smithsonian Contrib.*, viii. 142; H. H. Howorth's *Mammoth and the Flood* (Lond., 1887), p. 319; J. P. MacLean's *Mastodon, Mammoth and Man* (Cincinnati, 1880). Cf. references under "Mammoth" and "Mastodon," in *Poole's Index*. Koch represented that he found the remains of a mastodon in Missouri, with the proofs about the relics that the animal had been slain by stone javelins and arrows (*St. Louis Acad. of Sci. Trans.*, i. 62, 1857). The details have hardly been accepted on Koch's word, since some doubtful traits of his character have been made known (Short, *No. Amer. of Antiq.*, 116; Na-

geological evidence is quite sufficient without resorting to what has been called an Elephant's head in the architecture of Palenqué, the so-called Elephant Mound in Wisconsin, and the dubious if not fraudulent Elephant Pipe of Iowa.[1] The positions of the skeletons have led many to believe that the interval since the mastodon ceased to roam in the Mississippi Valley is not geologically great. Shaler (*Amer. Naturalist*, iv. 162) places it at a few thousand years, and there is enough ground for it perhaps to justify Southall (*Recent Origin, etc.*, 551; *Ep. of the Mammoth*, ch. 8) in claiming that these animals have lived into historic times.

A human skeleton was found sixteen feet below the surface, near New Orleans — (which is only nine feet above the Gulf of Mexico), and under four successive growths of cypress forests. Its antiquity, however, is questioned.[2] The belief in human traces in the calcareous conglomerate of Florida seems to have been based (Haven, p. 87) on a misconception of Count Pourtalès' statement (*Amer. Naturalist*, ii. 434), though it has got credence in many of the leading books on this subject. Col. Whittlesey has reported some not very ancient hearths in the Ohio Valley (*Am. Ass. Arts and Sciences, Proc., Chicago, 1868, Meeting*, vol. xvii. 268).

The testimony of the caves to the early existence of man has never had the importance in America that it has had in Europe.



FROM DAWSON'S FOSSIL MEN.*

daillac, *L'Amérique préhistorique*, 37). There have been claims also advanced for a stone resembling a hatchet, found with such animals in the modified drift of Jersey Co., Illinois. E. L. Berthoud (*Acad. Nat. Sci., Philad. Proc.* 1872) has reported on human relics found with extinct animals in Wyoming and Colorado. Dr. Holmes (*Ibid.* July, 1859) had described pottery found with the bones of the megatherium. Lyell seems to have hesitated to associate man with the extinct animals in America, when the remains found at Natchez were shown to him in an early visit to America (*Antiquity of Man*, 237). Howorth, *Mammoth and the Flood*, 317, enumerates the later discoveries, some being found under recent conditions (*Ibid.* 278), and so recent that the trunk itself has been observed (p. 299). In the earliest instance of the bones being reported, Dr. Mather, communicating the fact to the *Philosophical Trans. Roy. Soc.* (1714), xxix. 63, says they were found in the Hudson River, and he supposed them the remains of a giant man, while the colored earth about the bones represented his rotted body. Cf. *Mass. Hist. Soc. Coll.*, xii. 263.

[1] See on this a later page.

[2] Lyell's *Antiq. of Man*, 4th ed., 236; Nadaillac's *Les premiers hommes*, ii. 13; Southall's *Recent origin of man*, ch. 30. Vogt (*Lectures on Man*) accepts the evidence.

* The outer outline is that of the skull found in the cave of Cromagnon, in France, belonging, as Dawson says, p. 189, to one of the oldest human inhabitants of western Europe, as shown in Lartet and Christy's *Reliquiae Aquitanicae*. The second outline is that of the Enghis skull; the dotted outline that of the Neanderthal skull. The shaded skull is on a smaller scale, but preserving the true outline, and is one of the Hochelaga Indians (site of Montreal). Cuts of the Enghis and Neanderthal skulls are given in Lubbock's *Prehistoric Times*, pp. 328, 329. Dawkins (*Cave Hunters*, 235) thinks the Enghis skull of doubtful age. On the Neanderthal skull see Quatrefages and Hamy, *Crania Ethnica* (Paris, 1873–75), and Dawkins (p. 240). Huxley gives it a great antiquity, and says it is the most ape-like one he ever saw. Quatrefages, *Hommes fossiles*, etc. (1884), says it is not below some later men. Southall (*Epoch of the Mammoth*, 80) says it has the average capacity of the negro, and double that of the gorilla, and doubts its antiquity.

It was in 1822 that Dr. Buckland, in his *Reliquiae diluvianae* (2d ed., 1824), first made something like a systematic gathering of the evidence of animal remains, as shown by cave explorations; but he was not prepared to believe that man's remains were as old as the beasts. He later came to believe in the prehistoric man. In 1833–34, Dr. Schmerling found in the cave of Enghis, near Liége, a highly developed skull, and published his *Recherches sur les ossemens fossiles découverts dans les cavernes de la province de Liége.*[1]

In 1841, Boucher de Perthes began his discoveries in the valley of the Somme,[2] and finally discovered among the animal remains some flint implements, and formulated his views of the great antiquity of man in his *Antiquités Celtiques* (1847), rather for the derision than for the delectation of his brother geologists. In 1848, the Société Ethnographique de Paris ceased its sessions; but Boucher de Perthes had aroused a new feeling, and while his efforts were still in doubt his disciples[3] gathered, and amid much ridicule founded the Société d'Anthropologie de Paris, which has had so numerous a following in allied associations in Europe and America.

He tells us of the struggles he endured to secure the recognition of his views in his *De l'homme antédiluvien et de ses œuvres* (Paris, 1860), and his trials were not over when, in 1863, he found at Moulin Quignon a human jaw-bone,[4] which, as he felt, added much strength to the belief in the man of the glacial gravels.[5]

The existence of man in the somewhat later period of the caves[6] was also claiming constant recognition, and the new society was broad enough to cover all. In 1857, Dr. Fuhlrott had discovered the Neanderthal skull in a cave near Düsseldorf.

In 1858, the discovery of flint tools in the Brixham cave, in Devonshire, was more effective in turning the scientific mind to the proofs than earlier discoveries of much the same character by McEnery had been. In March, 1872, Emile Rivière investigated the Mentone caves, and found a large skeleton, unmistakably human, and the oldest yet found, supposed to be of the palæolithic period. (Cf. *Découverte d'un Squelette humain de l'Epoque paléolithique*, Paris, 1873.) All this evidence is best set forth in the collection of his periodical studies on the mammals of the Pleistocene, which were collected by William Boyd Dawkins in his *Cave Hunting: researches on the evidence of caves, respecting the early inhabitants of Europe* (London, 1874),[7] a book which may be considered a sort of complement to Lyell's *Antiquity of Man* and Lubbock's *Prehistoric Man;* Dawkins (ch. 9, and *Address*, Salford, 1877, p. 3) and Lubbock (*Scientific Lectures*, 150) unite in holding the modern Eskimos to be the representative of this cave folk. No argument is quite sufficient to convince Southall that the archæologists do not place the denizens of the caves too far back (*Recent Origin of Man* ch. 13), and he rejects a belief in the steady slowness of the formation of stalagmites (*Epoch of the Mammoth*, 90), upon which Evans, Geikie, Wallace, Lyell, and others rest much of their belief in the great antiquity of the remains found beneath the cave deposits.[8]

The largest development of cave testimony in America has been made by Dr. Lund,[9] a Danish naturalist, who examined several hundred Brazilian caves, finding in them the bones of man in connection with those of extinct animals.[10] The remains of a race, held to be Indians, found in the caves of Coahuila (Mexico) are described by Cordelia A. Studley in the *Peabody Mus. Reports*, xv. 233. Edward D. Cope has studied the contents of a bone cave in the island of Anguilla (West Indies), in the *Smithsonian Contributions to Knowledge*, no. 489 (1883). J. D. Whitney describes a cave in Calaveras County, in the *Smithsonian Rept.* (1887), and Edward Palmer one in Utah (*Peab. Mus. Rept.*, xi. 269). Putnam explored some in Kentucky (*Ibid.* viii.) Putnam's first account of his cave work in Kentucky, showing the use of them as habitations and as receptacles for mummies, is in the *Proc. Boston Soc. Nat. Hist.*, xvii. 319. J. P. Goodnow made similar explora-

[1] Cf. Lyell's *Antiq. of Man*, ch. 5; Huxley's *Man's place in nature*; Le Hon's *L'Homme fossile en Europe;* Leslie's *Origin and destiny of man*, p. 54, who passes in review these early tentative explorations.

[2] Cf. Lyell's description in his *Antiquity of Man*, ch. 8; Quatrefages, *Nat. Hist. Man* (N. Y., 1875), p. 41; Langel, *L'homme antédiluvien;* Büchner's *Man*, Eng. transl., ch. 1; Carl Vogt, *Vorlesungen über den Menschen.*

[3] Rigollot, of Amiens, who had doubted, finally came to believe in De Perthes's views.

[4] Büchner's *Man*, p. 26; Hugh Falconer's *Palæontological Memoirs*, London, 1868 (ii. 601). Falconer's essay on "Primæval Man and his Contemporaries," included in this work, was written in 1863, in vindication of the views which Falconer shared with Boucher de Perthes and Prestwich, and it is an interesting study of the development of the interest in the caves.

[5] Lyell, *Antiq. of Man*, ch. 8; Lubbock, *Prehistoric Times*, ch. 11; Nadaillac, *Les Premiers Hommes*, ii. 122; Leslie, *Origin, etc. of Man*, 56. Southall gives the antagonistic views in his *Recent Origin of Man*, ch. 16, and *Epoch of the Mammoth*, 126.

[6] This is in dispute, however. That the older cave implements and those of the drift may be of equivalent age seems to be agreed upon by some.

[7] Cf. also Geikie's *Great Ice Age;* Lubbock's *Prehistoric Times*, ch. 10; Evans's *Anc. Stone Implements of Gt. Britain;* Wilson's *Prehistoric Annals of Scotland;* Nilsson's *Stone Age in Scandinavia;* Figuier's *World before the Deluge* (N. Y., 1872), p. 473; Joly, *Man before Metals*, ch. 3; Cazalis de Fondouce's *Les temps préhistoriques dans le sud-est de la France;* Roujow's *Etude sur les races humaines de la France;* Peschel's *Races of Men*, introd.

The scarcity of human remains in the drift and in the caves is accounted for by Lyell (*Student's Elements*, N. Y., p. 153) by man's wariness against floods as compared with that of beasts; and by Lubbock (*Prehist. Times*, 349) through the vastly greater numbers of the animals in a hunters' age.

[8] The present day is not without a cave people. See *London Anthropolog. Rev.*, April, 1869, and Büchner's *Man*, Eng. transl., p. 270.

[9] Haven, p. 86.

[10] Cf. Florentino Amegluno's *La Antigüedad del Hombre en la Plata* (Paris, 1880), and Howorth's *Mammoth and the Flood*, 355, who cites Klee's *Le Déluge*, p. 326, and enumerates other evidences of pleistocene man in South America, in connection with extinct animals.

tions in Arizona (*Kansas City Rev.*, viii. 647); E. T. Elliott in Colorado (*Pop. Sci. Mo.*, Oct., 1879), and Leidy in the Hartman cave, in Pennsylvania (*Philad. Acad. Nat. Sci. Proc.*, 1880, p. 348). Cf. also Haldeman in the *Am. Philos. Soc. Trans.* (1880) xv. 351. Col. Charles Whittlesey has discussed the "Evidences of the antiquity of man in the United States," in describing some cave remains of doubtful age.[1] W. H. Dall's *On the remains of later prehistoric man obtained from caves in the Catherine archipelago, Alaska territory, and especially from the caves of the Aleutian islands* (Washington, 1878) is included in the *Smithsonian contributions to knowledge*, xxii.

Throughout the world, naturalists have found on streams and on the sea-coast, heaps of the refuse of the daily life of primitive peoples. Beneath the loam which has covered them there are found the shells of edible mollusks and other relics of food, implements, ornaments and vessels, of stone, clay, and bone. Sometimes it happens that natural superposed accumulations will mark them off in layers, and distinguish the usages of successive periods.[2]

OSCAR PESCHEL.*

In the Old World such heaps upon the Danish coast have attracted the most attention under the name of Kjœkkenmœddinger, or Kitchen-middens, and their teachings have enlivened the recitals of nearly all the European archæologists who have sought to picture the condition of these early races.

It seems to be the general opinion that in the Old World this shell-heap folk succeeded, if they do not in part constitute the contemporaries of, the men of the caves.[3]

These accumulations are known usually in America as shell heaps, and it is generally characteristic of them that, while they contain pottery and bone implements, the stone instruments are far less numerous, and

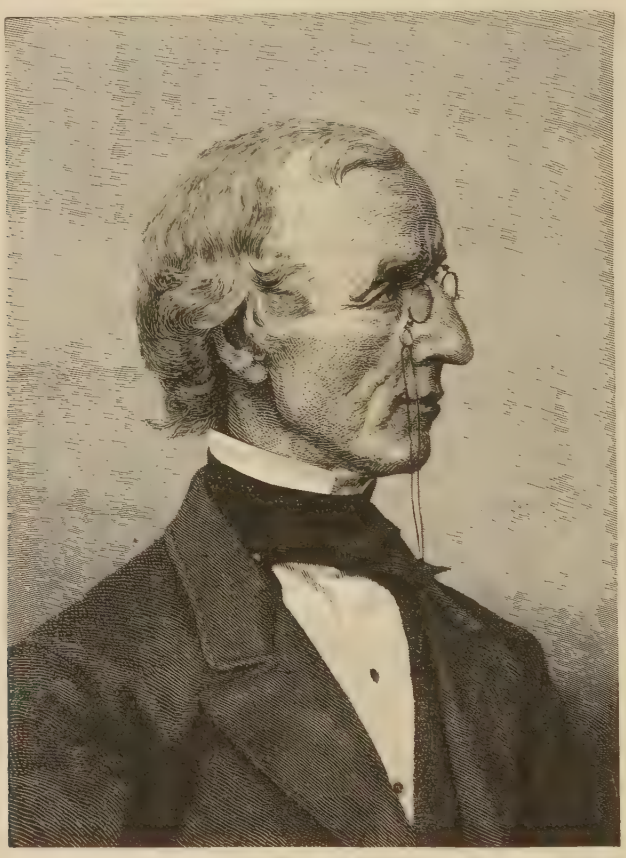
[1] The instances are not rare of mummies being found in caves of the Mississippi Valley; but there is no evidence adduced of any great age attaching to them. Cf. N. S. Shaler on the antiquity of the caverns and cavern life of the Ohio Valley, in *Boston Soc. Nat. Hist. Mem.*, ii. 355 (1875); and on desiccated remains, see the *Archæologia Amer.*, i. 359; Brinton's *Floridian Peninsula*, App. ii. On the American caves see Nadaillac's *L'Amérique préhistorique*, ch. 2.

[2] Abbott's *Primitive Industry*, ch. 30.

[3] Lyell, *Antiq. of Man*, 4th ed. ch. 2; Lubbock, *Prehist. Times*, ch. 7; Nadaillac, *Les premiers hommes*, i. ch. 5; Joly, *Man before Metals*, ch. 4; Figuier, *World before Deluge* (N. Y., 1872), p. 477. Worsaae, the leading Danish authority, calls them palæolithic relics; Lubbock places them as early neolithic. Southall, of course, thinks they indicate the rudeness of the people, not their antiquity. (*Recent Origin*, etc., ch. 12; *Epoch of the Mammoth*, ch. 5.)

* From the engraving in the 1877 ed. of his *Gesch. des Zeitalters der Entdeckungen.* His *Abhandlungen zur Erd- und Völker-Kunde*, continuing his contributions to *Das Ausland* and other periodicals, and edited by J. Löwenberg, was published at Leipzig, in 3 vols. in 1877–79, the preface containing an account of Peschel's services in this field.

generally occur in the upper layers in those of Florida, but they are scattered through all the layers in those of New England. Professor Jeffries Wyman, whose name is in this country particularly associated with shell-heap investigations, could not find[1] that any one had in the scientific spirit called attention to the subject in America earlier than Caleb Atwater in the *Archæologia Americana* (vol. i., 1820), who had observed such deposits on the Muskingum River in Ohio. They had not passed unnoticed, however, by some of the early explorers. Putnam (*Essex Inst. Bulletin*, xv. 86) notes that J. T. Ducatel observed those on the Chesapeake in 1834. The earliest more particular mention of the inland mounds seem to have been made in Prinz Maximilian's *Travels in the United States*.[2] Foster, in his *Prehistoric Races of the U. S.* (ch. 4, —a special survey of the American heaps), says that Professor Vanuxem was the first to describe the sea-side mounds in 1841, in the *Proc. Amer. Asso. Geologists* (i. 22).[3]



JEFFRIES WYMAN.*

[1] *Am. Naturalist*, ii. 397.

[2] Cf. Lyell's *Second Visit*.

[3] All the general treatises on American archæology now cover the subject: Wilson, *Prehist. Man*, i. 132; Nadaillac, *L'Amérique préhistorique*, ch. 2; Short, *No. Amer. Antiq.*, 106; *Smithsonian Reports*, 1864 (Rau), 1866, 1870 (J. Fowler); *Bull. Essex Inst.*, iv. (Putnam); *Peabody Mus. Reports*, i., v., vii.; *Amer. Assoc. Adv. Sci. Proc.* 1867, 1875; *Phil. Acad. Nat. Sci. Proc.* 1866; *Pop. Science Monthly*, x. (Lewis); Lyell's *Second Visit*, i. 252; Stevens, *Flint Chips*, 194. For local observations: J. M. Jones in *Smithsonian Ann. Report*, 1863, on those of Nova Scotia. S. F. Baird in *Nat. Museum Proc.* (1881, 1882), on those of New Brunswick and New England. For those in Maine see *Peabody Mus. Reports*, xvi., xviii.; *Central Ohio Sci. Assoc. Proc.*, i. 70; that at Damariscotta, in particular, is described in the *Peabody Mus. Reports*, xx. 531, 546; and in the *Maine Hist. Soc. Col.*, v. (by P. A. Chadbourne) and vi. 349. Wyman's studies are in the *Amer. Naturalist*, Jan., 1868, and *Peabody Mus. Rept.*, ii. Putnam (*Essex*

* From a photograph taken in 1868, furnished by his family. The portrait in the *Peabody Museum Report*, no. viii., represents him somewhat later in life, with a beard. He died Sept. 4, 1874. There are accounts of Wyman in the same *Report*, by Asa Gray, who also made an address on Wyman before the Boston Society of Nat. Hist. (cf. *Pop. Science Monthly*, Jan., 1875), with commemorations by O. W. Holmes (*Atlantic Monthly*, Nov., 1874, and *Mass. Hist. Soc. Proc.*, xiv. 4), by F. W. Putnam in the *Proc. Amer. Acad.* with a list of his publications; by Packard in the *Mem. Nat. Acad.*, and B. G. Wilder (*Old and New*, Nov., 1874).

There has been as yet little found in America from which to develop the evidence of early man from any lake or river dwellings, while so much has been done in Europe.[1] In some parts of Florida the Indians are

SHELL HEAPS ON CAPE COD.

Inst. Bull., xv. 86) says that those at Pine Grove, near Salem, Mass., were examined in 1840. The map which is annexed of those on Cape Cod, taken from the *Smithsonian Report* (1883, p. 905), shows the frequency of them in a confined area, as observed; but the same region doubtless includes many not observed.

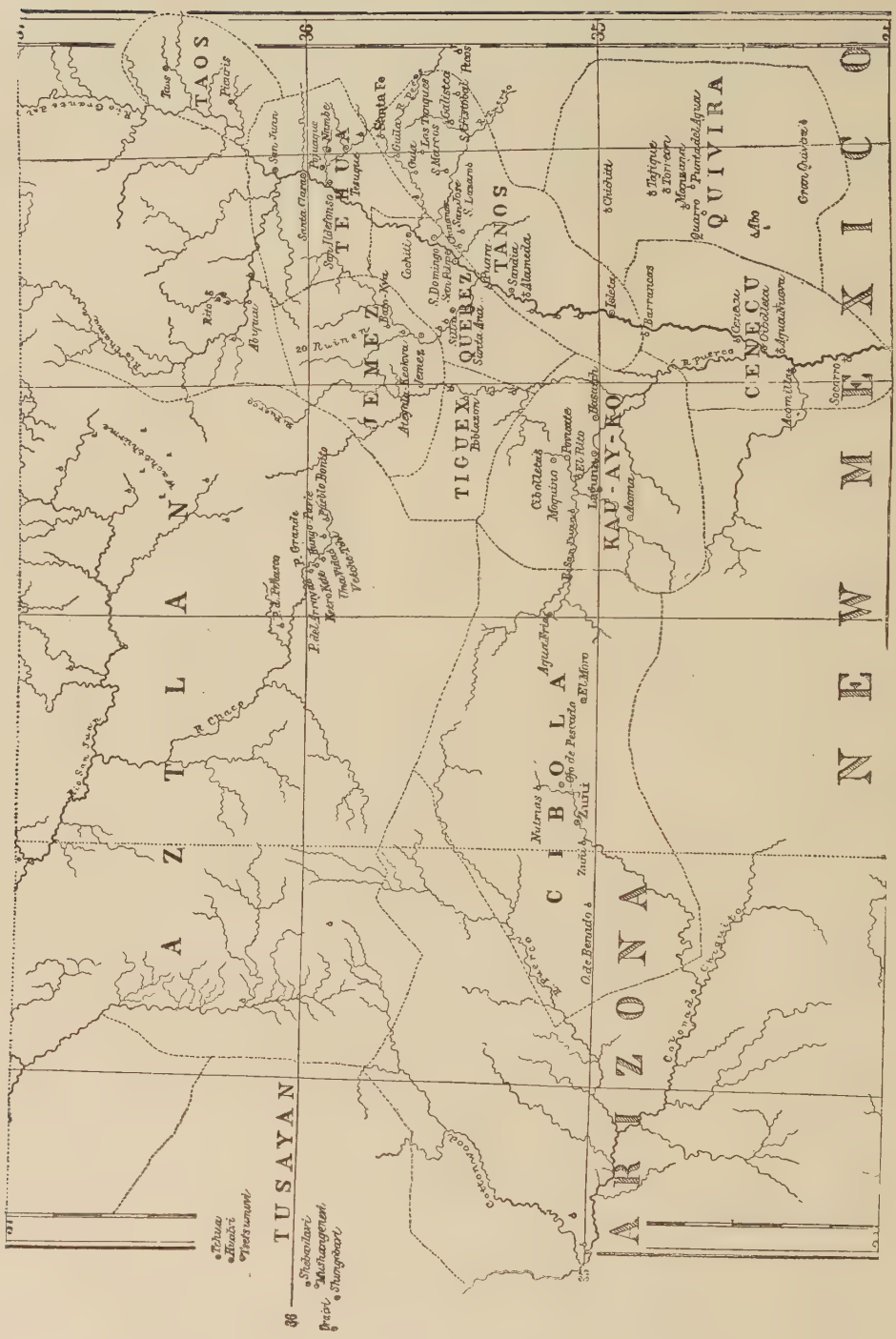
For those on the New Jersey coast see Cook's *Geology of New Jersey* (Newark, 1868), and Rau in the *Smithsonian Reports*, 1863, 1864, 1865. The Lockwood collection from the heap at Keyport is in the Peabody Museum (cf. *Rept.*, xxii. 43). Francis Jordan describes the *Remains of an Aboriginal Encampment at Rehoboth, Delaware* (Philad., 1880). Elmer R. Reynolds reported on "Precolumbian shell heaps at Newburg, Maryland, and the aboriginal shell heaps of the Potomac and Wicomico rivers" at the *Congrès des Américanistes* (Copenhagen, 1883, p. 292). Joseph Leidy describes those at Cape Henlopen in the *Phil. Acad. Nat. Sci.*, 1866. Those on the Georgia coast, St. Simon's Island, etc., are pointed out in C. C. Jones's *Antiquities of the Southern Indians; Smithsonian Repts.*, 1871 (by D. Brown); in Lyell's *Antiq. of Man*, and in his *Second Visit to the U. S.* (N. Y., 1849), i. 252.

The shell heaps of Florida have had unusual attention. Wyman has indicated the absence of objects in them, showing Spanish contact. Dr. Brinton's first studies of them were in his *Notes on the Floridian Peninsula* (Philad., 1859), ch. 6, and again in the *Smithsonian Report* (1866), p. 356. Prof. Wyman's first reports (St. John River) were in *The American Naturalist*, Jan., Oct., Nov., 1868. He also described them in the *Peabody Mus. Report*, i., v., vii., and in his *Fresh Water Shell Heaps of the St. John River, Florida* (Salem, 1875), being no. 4 of the *Memoirs of the Peabody Acad. of Science.* There are other investigations recorded in the *Smithsonian Reports*, 1877, by S. P. Mayberry, on St. John River; 1879, by S. T. Walker, on Tampa Bay; also by A. W. Vogeler in *Amer. Naturalist*, Jan., 1879; by W. H. Dall in the *American Journal of Archæology*, i. 184; and by A. E. Douglass in the *Amer. Antiquarian*, vii. 74, 140. On those of Alabama, see *Peabody Mus. Rept.*, xvi. 186, and *Smithsonian Rept.*, 1877.

On those of the great interior valleys, see the *Second Geological Report of Indiana*, and Humphrey and Abbott's *Physics and Hydraulics of the Mississippi Valley.*

For the California coast, there is testimony in Bancroft's *Native Races*, iv. 709–712; *Smithsonian Rept.*, 1874 (by P. Schumacher); *American Antiquarian*, vii. 159; and *Journal of the Anthropological Institute*, v. 489. Schumacher covers the northwest coast in the *Smithsonian Rept.*, 1873. Those in Oregon are reported to be destitute of the bones of extinct animals, in the *Bull. U. S. Geol. Survey*, iii. Bancroft, *Nat. Races*, iv. 739, refers to those on Vancouver's Island. W. H. Dall describes those on the Aleutian Islands in the *Contributions to No. Amer. Ethnology*, i. 41.

[1] This branch of archæological science began, I believe, with the discovery by Sir Wm. R. Wilde of some lacustrine habitations in a small lake in county Meath. R. Monro's *Ancient Scotch lake Dwellings* (Edinburgh, 1882) has



PUEBLO REGION.*

* From a map, "Originalkarte der Urwohnsitze der Azteken und Verwandten Pueblos in New Mexico, zusammengestellt von O. Loew," in Petermann's *Mittheilungen über wichtige neue Erforschungen auf dem Gesammtgebiete der Geographie*, xxii. (1876), table xii. The small dotted circles stand for inhabited pueblos; those with a perpendicular line attached are ruins; and when this perpendicular line is crossed it is a Mexicanized pueblo. See the map in Powell's *Second Rept. Bur. Ethnol.* (1880–81) p. 318, which marks the several classes: inhabited, abandoned, ruined pueblos, cavate houses, cliff houses, and tower houses.

reported to have built houses on piles; and in South America tree-houses and those on platforms are well known. Mr. Hilborne T. Cresson has reported (*Peabody Mus. Rept.*, xxii. for 1888) the discovery of pile ends in the Delaware River, and has shown that two of these river stations are earlier than the third, as is evident from the rude implements of argillite found in the two when compared with those discovered in the third, where implements of jasper and quartz and fragments of pottery were associated with those of argillite.

The earliest discoveries of the cliff houses of the Colorado region were made by Lieut. J. H. Simpson, and his descriptions appeared in his *Journal of a Military Reconnoissance*, in 1849.[1] No considerable addition was made to our knowledge of the cliff dwellers till in 1874–75, when special parties of the Hayden Geological Survey were sent to explore them (*Hayden's Report*, 1876), whence we got accounts of those of southwestern Colorado by W. H. Holmes, including the cavate-houses and cliff-dwellers of the San Juan, the Mancos, and the ruins in the McElmo cañon.[2] W. H. Jackson gives a revised account of his 1874 expedition in the *Bulletin* of the Survey (vol. ii. no. 1), adding thereto an account of his explorations of 1875. Jackson also gives a chapter on the ruins of the Chaco cañon.[3]

In coming to the class of ruins lying in a few instances just within, but mostly to the north of, the Mexican line, we encounter the Pueblo race, whose position in the ethnological chart is not quite certain, be their connection with the Nahuas and Aztecs,[4] or with the moundbuilders, — red Indian if they be, — or with the cliff-dwellers, as perhaps is the better opinion. Their connection with savage nations farther north is not wholly determinable, as Morgan allows, on physical and social grounds, and perhaps not as definitely settled by their architecture as Cushing seems to think.[5]

The Spaniard early encountered these ruins,[6] and perhaps the best summary of the growth of our knowledge of them by successive explorations is in Bancroft's *Nat. Races*, iv. ch. 11.[7] In the century after the Spanish conquest, we have one of the best accounts in the *Memorial* of Fray Alonso Benavides, published at Madrid in 1630.[8] The most famous of the ruins of this region, the Casa Grande of the Gila Valley in Arizona,[9] is

gathered what is known of the remains in Great Britain. There are similar remains in various parts of the continent of Europe; but those revealed by the dry season of 1853–54 in the Swiss lakes have attracted the most notice. Dr. Keller described them in *Reports* made to the Archæological Society of Zurich. A. Morlot printed an abstract of Keller's Report in the *Smithsonian Report*, 1863. In 1866, J. E. Lee arranged Keller's material systematically, and translated it in *The Lake Dwellings of Switzerland and other parts of Europe, by Ferdinand Keller* (London, 1866), which was reissued, enlarged and brought down to date, in a second edition in 1878. The earliest elaborated account was Prof. Troyon's *Habitations lacustres* (1860), of which there was a translation in the *Smithsonian Reports*, 1860, 1861. Troyon and Keller have reached different conclusions: the one believing that the traces of development in the remains indicate new peoples coming in, while Keller holds these to be signs of the progress of the same people. A paper by Edouard Desor, *Palafittes or Lacustrian Constructions*, appeared in English in the *Smithsonian Report*, 1865. There is a large collection of typical relics from these lake dwellings in the Peabody Museum (*Report*, v.).

These evidences now make part of all archæological treatises: Lyell's *Antiq. of Man;* Lubbock, *Prehist. Times*, ch. 6; Nadaillac, *Les premiers hommes*, i. 241; Stevens, *Flint Chips*, 119; Joly, *Man before Metals*, ch. 5; Figuier, *World before the Deluge* (N. Y., 1872), p. 478; Southall, *Recent Origin*, etc., ch. 11, and *Epoch of the Mammoth*, ch. 4; *Archæologia*, xxxviii.; Haven in *Amer. Antiq. Soc. Proc.*, Oct., 1867; Rau in *Harper's Monthly*, Aug., 1875; *Poole's Index*, p. 718, and *Supplement*, p. 246. The man of the Danish peat-beds and of the Swiss lake dwellings is generally held to belong to the present geological conditions, but earlier than written records.

[1] *Senate Doc.;* also separately, Philad., 1852. Cf. Bancroft, *Native Races*, iv. 652; Domenech's *Deserts*, etc., i. 201; *Annual Scient. Discovery*, 1850; Short, *No. Am. of Antiq.*, 293. A photograph of the Casa Blanca is given in *Putnam's Report*, *Wheeler's Survey*, p. 370. Cf. Haven in *Am. Antiq. Soc. Proc.*, 1855, p. 26.

[2] *Bull. U. S. Geol. and Geog. Survey of the territories*, 2d series, no. 1 (Washington, 1875), and its *Annual Rept.* (Washington, 1876), condensed in Bancroft, iv. 650, 718, and by E. A. Barber in *Congrès des Américanistes*, 1877, i. 22. Cf. Short, 295, etc.

[3] *Bulletin*, etc., ii. (1876). Hayden's *Survey* (1876). Cf. Short, p. 305; *Kansas City Rev.*, Dec., 1879 (on their age); James Stevenson in *Fourth Rept. Bureau of Ethnology*, pp. xxxiv, 284; Nadaillac's *Les Premiers Hommes* (ii. 61), and *L'Amérique préhistorique*, ch. 5; *Scribner's Mag.*, Dec., 1878 (xvii. 266); *Good Words*, xx. 486; *Science*, xi. 257. Those of the Cañon de Chelly are described by James Stevenson in the *Journal Amer. Geo. Soc.* (1886), p. 329. It is generally recognized that the cliff dwellers and the Pueblo people were the same race, and that the modern Zuñi and Moquis represent them. Bandelier in *Archæol. Inst. of Am., 5th Rept.* J. Stevenson (*Second Rept. Bur. of Ethnol.*, 431) describes some cavate dwellings of this region cut out of the rock by hand. There is no evidence that these remains call for any association with them of the great antiquity of man.

[4] Cf., for instance, Short, 331.

[5] Morgan (*Systems of Consanguinity*, 257) finds correspondence to the roving Indian in physical and cranial character, in linguistic traits, and in the similarity of arts and social habits. Their connection with the moundbuilder and cliff-dwelling race is traced in H. F. C. Ten Kate's *Reizen en Onderzolkingen in Nord America* (Leyden, 1885). Cushing thinks (*Fourth Rept. Bur. Ethnol.*, 481) they got their habit of building in stories from having, as cliff-dwellers, earlier built on the narrow shelves of the rocks. Morgan (*Peab. Mus. Rept.*, xii. 550) thinks their architectural art deteriorated, since the ruined pueblos are finer constructions than those inhabited now. Cf. on the origin of Pueblo architecture V. Mindeleff in *Science*, ix. 593, and S. D. Peet in *Amer. Antiquarian*, iv. 208, and *Wisconsin Acad. of Science*, v. 290.

[6] See chapter vii. of Vol. II.

[7] Cf. lesser accounts of these earlier notices in E. G. Squier's paper in the *Amer. Rev.*, Nov., 1848; and G. M. Wheeler in the *Journal Amer. Geog. Soc.* (1874), vol. vi.

[8] The book is rare. There is a copy in Harvard College library. Cf. Sabin, ii. 4636–38; Ternaux, 518; Carter-Brown, ii.; Leclerc, no. 813 (200 francs). There is a French version, Brussels, 1631; and a Latin, Saltzburg, 1634.

[9] Not to be confounded with the Casas Grandes, farther

supposed to have been seen (1540) by Coronado, then in a state of ruin; but we get no clear description till that given by Padre Mange, who accompanied Padre Kino to see the ruins in 1697.[1]

There are few descriptions[2] of the antiquities of this country previous to the military examination of it which was made during the Mexican War. Such is recorded in W. H. Emory's *Notes of a Military Reconnoissance from Fort Leavenworth in Missouri to San Diego in California*,[3] which gives us some of the earliest representations of these antiquities, including the ruins of Pecos.[4] In 1849, Col. Washington, the governor of New Mexico, organized an expedition against the Navajos, and Lieut. James H. Simpson gives us the first detailed account of the Chaco cañon in his *Journal of a Military Reconnoissance* (Philad., 1852).[5] He also covered (p. 90), among the other ruins of this region, the old and present habitations of the Zuñi, but these received in some respects more detailed examination in Capt. L. Sitgreave's *Report of an Expedition down the Zuñi and Colorado rivers* (Washington, 1853),[6] accompanied by a map and other illustrations.[7] New channels of information were opened when the United States government undertook to make surveys (1853) for a trans-continental line of railways; and a great deal of material is embodied in Whipple's report on the Indian tribes in the *Pacific R. R. Reports*, vol. iii. The running of the boundary line between the United States and Mexico also contributed to our knowledge. The commissioner during 1850–53 was John Russell Bartlett, who, on the failure of the government promptly to publish his report, printed his *Personal narrative of explorations and incidents* (N. Y., 1854), and made in some parts of it an important contribution to our knowledge of the antiquities of this region.[8]

No considerable advance was now made in this study for about a score of years. Major Powell first published his account of his adventurous exploration (1869) of the Colorado cañon in *Scribner's Monthly* (Jan., Feb., Mar.) in 1875, and it was followed by his official *Exploration of the Colorado River* (Washington, 1875), making known the existence of ruins in the cañon's gloomy depths. The *Reports* of the U. S. Geological Survey, including the accounts by W. H. Jackson and W. H. Holmes, give much valuable and original information; and a good deal of what has been included in the *Reports of the Chief of Engineers* (U. S. Army) for 1875 and 1876 will also be found in the seventh volume, edited by F. W. Putnam, of *Wheeler's Survey*,[9] including the pueblos of Acoma, Taos, San Juan, and the ruin[10] on the Animas River.

The latest examinations of these Pueblo remains, of which we have published accounts, are those made by A. F. Bandelier for the Archæological Institute of America. He has given his results in his "Historical introduction to studies among the sedentary Indians of New Mexico," and in his "Report on the ruins of Pecos," which constitutes the initial volume of *Papers, American series*, of the Institute (Boston, 1881).[11] He believes Pecos to be Cicuye, visited by Alvarado in 1541,—a huge pile with 585 compartments, finally abandoned in 1840. In October, 1880, he examined the region west of Santa Fé (*Second Rept. Archæol. Inst.*). His explorations also determined the eastern limits of the sedentary occupation of New Mexico

south in the Mexican province of Chihuahua, which is of a similar character. Cf. Bancroft, iv. 604 (with references); Short, ch. 7; Bartlett's *Personal Narrative*, ii. 348. It was first described in Escudero's *Noticias de Chihuahua* (1819); and again in 1842, in *Album Mexicano*, i. 372.

[1] From that day to the present there have been very many descriptions: *Documentos para la historia de Mexico*, 4th ser., i. 282; iv. 804; Bancroft, *Nat. Races*, iv. 621; Short, 279; Schoolcraft, *Ind. Tribes*, iii. 300; Bartlett, *Personal Nar.*, ii. 278, 281; Emory, *Reconnaissance*, 81, 567; Humboldt, *Essai politique;* Baldwin, *Anc. America*, 82; Mayer, *Mexico*, ii. 396, and *Observations*, 15; Domenech, *Deserts*, i. 381; Ross Browne, *Apache Country*, 114; Jametel in *Rev. de Géog.*, Mar., 1881; Nadaillac, *Prehist. Amér.*, 222. Bancroft groups many of the descriptions, and best collates them.

[2] Gregg, in his *Commerce des Prairies* (N. Y., 1844), examined the Pueblo Bonito in 1840.

[3] Washington, 1848,—30th Cong., Ex. Doc. 41. This includes Lieut. J. W. Abert's *Report and Map of the Examination of New Mexico*. He visited two pueblos. This and other material afforded the base for the studies of Squier and Gallatin, the former printing "The ancient monuments of the aboriginal semi-civilized nations of New Mexico and California" (*Amer. Rev.*, 1848), and the latter a paper in the *Amer. Ethnol. Soc. Trans.*, ii., repeated in French in the *Nouv. Ann. des Voyages*, 1851, iii. 237.

[4] This is perhaps the most important of all the ruins. Bancroft, iv. 671. Bandelier's studies are the most recent. *Congrès des Amér., Compte Rendu*, 1877, ii. 230, and his *Introd. to studies among the sedentary Indians of New Mexico and Report of the ruins of Pecos* (Boston, 1881,—Archæol. Inst. of America).

[5] Also in *Rept. of Sec. of War, 1st Sess. 31st Cong.* Cf. Bancroft, iv. 652, 655, 661; Baldwin's *Anc. America*, 86; Domenech's *Deserts*, i. 149, 379; Short, 292. The Chaco cañon was visited by W. H. Jackson in 1877, and his report is in the *Report of Hayden's Survey*, 1878, p. 411. Morgan gives a summary, with maps (see Nadaillac, 229), in his *Houses and House Life*, etc., ch. 7, 8,—holding (p. 167) them to be the seven cities of Cibola seen by Coronado. Cf. on this mooted question our Vol. II. 501–503; and Simpson's paper in the *Journal Amer. Geog. Soc.* vol. v.

[6] *32d Cong., 2d sess., Sen. Ex. Doc., No. 59.*

[7] On the Zuñi region see Bancroft, iv. 645, 667, 673 (with ref.); Short, 288; Möllhausen, *Reisen in die Felsengebirge Nord Amerikas* (ii. 196, 402), and his *Tagebuch*, 283; Cozzen's *Marvellous Country; Tour du Monde*, i.; *Harper's Monthly*, Aug., 1875; J. E. Stevenson's *Zuñi and the Zunians* (Washington, 1881). Of F. H. Cushing's recent labors among the Zuñi, see Powell's *Second, Third*, and *Fifth Reports, Bur. of Ethnology*.

[8] The *Report* of Lieut. W. H. Emory, directly in charge of the survey (*Ho. Ex. Doc. 135, 34th Cong., 1st sess.*), was printed separately in 3 vols. in 1859.

[9] *Report upon U. S. Geol. Surveys, west of the one hundredth meridian in charge of First Lieut. Geo. M. Wheeler, vol. vii., Archæology* (Washington, 1879). Ernest Ingersoll, a member of the survey, published some papers on the "Village Indians of New Mexico" in the *Journal Amer. Geog. Soc.*, vi. and vii.

[10] Cf. L. H. Morgan on this ruin in the *Peab. Mus. Rept.*, xii. 536, and in a paper in the *Trans. Amer. Ass. Adv. Sci.* (St. Louis, 1877).

[11] His notes form a good bibliography. He intends as a supplement an account of the different explorations prior to the seventeenth century.

(*Fifth Report*). He renewed his studies in 1882 (*First Bull. Archæol. Inst.*, Jan., 1883), and thought the ruins showed successive occupiers, and divides them into cave dwellings, cliff houses, one-story buildings, and those of more than one, with each higher one retreating from the front of the next lower.

The most essential sources of information have thus been enumerated, but there is not a little fugitive and comprehensive treatment of the subject worth the student's attention who follows a course of investigation.[1]

The literature of the moundbuilders, and of the controversies arising out of the mysterious relics of their life, is commensurate with the very wide extent of territory covered by their traces.[2] It was long before any intelligent notice was taken of the mounds by those who traversed the wilderness. De Soto, in 1540,

THE PUEBLO REGION.*

[1] Bancroft (*Native Races*, i. 529, 599; iv. 662, etc.) gives the best clues to authorities prior to 1875. Short (ch. 7) condenses more, and Baldwin (p. 78) still more. Nadaillac, *L'Amérique préhistorique* (ch. 5) also summarizes. Morgan studies the social condition of this ancient people (*Systems of Consanguinity*, Part ii. ch. 6; *Houses and House Life*, ch. 6; *Peabody Mus. Repts.*, xii.). Cf. James Stevenson's "Ancient Habitations of the Southwest" in *Journal Amer. Geog. Soc.*, xviii. (1886), and his illustrated *Catalogue of Collections* in Powell's *Second Rept. Bureau of Ethnol.*; E. A. Barber on "Les anciens pueblos" in *Cong. des Américanistes*, 1877, i. 23, in which he traces a gradation from the moundbuilders through the old pueblo peoples to the Toltecs; C. Schoebel's account of an expedition in the *Archives de la Soc. Amér. de France*, nouv. ser. i., and the references in *Poole's Index*, i. 1063; ii. 359.

Dividing the remaining references into localities, we note for New Mexico the following: J. H. Carleton in the *Smithsonian Rept.* (1854); W. B. Lyon (*Ibid.* 1871); J. A. McParlin (*Ibid.* 1877); Turner in *Am. Ethnol. Soc. Trans.*, ii.; and A. W. Bell in *Journal of the Ethnol. Soc.* (London), Oct., 1869. Carleton describes the ruins also in the *Western Journal*, xiv. 185. Clarence Pullen describes the people in *Journal Amer. Geog. Soc.*, xix. 22. For Colorado: E. L. Berthoud in *Smithsonian Repts.*, 1867, 1871. G. L. Cannon in *Ibid.* 1877; H. Gannett in *Pop. Sci. Monthly*, xvi. 666 (Mar., 1880); *Amer. Naturalist*, x. 31; *Lippincott's Mag.*, xxvi. 54. For Arizona: F. E. Grossmann, J. C. Y. Lee, and R. T. Burr in *Smithsonian Repts.*, respectively for 1871, 1872, 1879, with other references in Poole under "Moqui."

[2] This scope of treatment is manifest in the large number of papers contained in the *Smithsonian Reports*. See W. J. Rhees' *Catal. of Publ. of Sm. Inst.* (Washington, 1882), pp. 252–3.

* A reduction of the map accompanying Bandelier's report on his investigations in New Mexico, in the *Fifth Rept. of the Archæological Institute of America* (Cambridge, 1884).

could get no traditions concerning them beyond the assurances that the peoples he encountered had built them, or some of them. We read of them also in Garcilasso de la Vega, Biedma and the Knight of Elvas, on the Spanish side; but on the French at a later day we learn little or nothing from Joutel, Tonti, and Hennepin, though something from Du Pratz, La Harpe and some of the missionaries. Kalm,[1] the Swede, in 1749, was about the first to make any note of them. Carver found them near Lake Pepin in 1768. In 1772 the missionary David Jones[2] made observations upon those in Ohio. Adair did not wholly overlook them in his *American Indians* in 1775. Prof. James Dunbar, of Aberdeen, in his *Essays on the history of mankind in rude and uncultivated ages* (Lond., 1780), uses what little Kalm and Carver afforded. Jefferson in his *Notes on Virginia* (1782) speaks of them as barrows "all over the country," and "obvious repositories of the dead."[3] Arthur Lee makes reference to them in 1784. A map of the Northwest Territory, published by John Fitch about 1785, places in the territory which is now Wisconsin the following legend: "This country has once been settled by a people more expert in the art of war than the present inhabitants. Regular fortifications, and some of these incredibly large, are frequently to be found. Also many graves and towers like pyramids of earth." In 1786 Franklin thought the works at Marietta might have been built by De Soto; and Noah Webster, in a paper in Roberts' *Florida*, assented.[4] B. S. Barton, in his *Observations in some parts of Natural History* (London, 1787), credited the Toltecs with building them, whom he considered the descendants of the Danes.

As the century draws to a close, we find occasional and rather bewildered expression of interest in the *Observations on the Ancient Mounds* by Major Jonathan Heart;[5] in the *Missions* of Loskiel; in the *New Views* of Dr. Smith Barton; in the *Carolina* of William Bartram; and in the travels of Volney. In 1794 Winthrop Sargent reported in the *Amer. Philos. Soc. Trans.*, iv., on the exploration of the mounds at Cincinnati. The present century soon elicited a variety of observations, but there was little of practical exploration. A New England minister, Thaddeus Mason Harris, passed judgment upon those in Ohio, when he journeyed thither in 1803.[6] The commissioner of the United States to run the Florida boundary, Andrew Ellicott, describes some near Natchez in his *Journal* (1803). Bishop Madison communicated through Professor Barton some opinions about those in Western Virginia, which appear in the *Transaction* of the American Philosophical Society, taking different grounds from Dr. Harris, who had thought them works of defence. The explorations of Lewis and Clark (1804–6) up the Missouri, and of Pike (1805–7) up the Mississippi, produced little. Robin, the French naturalist, in 1805,[7] Major Stoddard[8] and Breckenridge[9] later, saw some in Louisiana, Missouri, and Illinois. A leading periodical, *The Portfolio*, contributed something to the common stock in 1810 and 1814, giving plans of some of the mounds. Those in Ohio were again the subject of inquiry by F. Cuming in his *Sketches of a Tour to the Western Country* (Pittsburg, 1810), and by Dr. Daniel Drake in his *Picture of Cincinnati and the Miami Valley* (Cinn., 1815). John Heckewelder, the Moravian missionary, accounted for the ancient fortifications through the traditions of the Delawares, who professed once to have inhabited this country, but it has been suspected that the worthy missionary was imposed upon.[10] DeWitt Clinton, in 1811, before the New York Historical Society, and again in 1817, before the Literary and Philosophical Society of New York, had given some theories in which the Scandinavians figured as builders of the mounds in that State.

It was thus at a time when there was much speculation and not much real experimental knowledge respecting these remains that, under the auspices of the then newly founded American Antiquarian Society, Mr. Caleb Atwater, of Ohio, was employed to explore and survey a considerable number of these works. He embodied his results in the initial volume of the publication of that society, the *Archæologia Americana*.[11] After pointing out scattered evidences of the traces of European peoples, found in coins and other relics throughout the country, Atwater proceeds to his description of the earthworks, mainly of Ohio; and beside giving many plans,[12] he enters into the question of their origin, and expresses a belief in the Asiatic origin of their builders, and in their subsequent migration south to lay, as he thinks, the foundations of the Mexican and Peruvian civilizations.

[1] *Beschreibung der Reise* (Göttingen, 1764; Eng. transl., Lond., 1772).

[2] *Journal of two visits*, etc., Burlington, 1774 (Thomson's *Bibl. of Ohio*, no. 657).

[3] His account is copied in the *Mass. Mag.*, Oct., 1791.

[4] Cf. *Amer. Mag.*, Dec., 1787; Jan., Feb, 1788.

[5] Repeated in Gilbert Imlay's *Topog. Descrip. West. Territory*.

[6] *Journal of a Tour*.

[7] *Voyage dans Louisiane* (Paris, 1807).

[8] *Sketches of Louisiana* (1812).

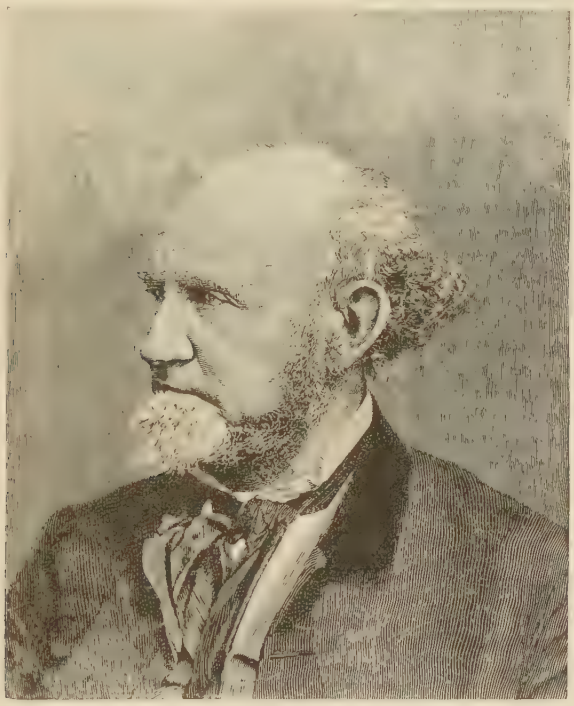
[9] *Views of Louisiana* (Pittsburg, 1814).

[10] *Account of the History, Manners and Customs of the Indian Nations who once inhabited Pennsylvania and the neighboring States*, in the *Transactions Amer. Philos. Soc.* (1819), and later repeated in other editions and versions (P. G. Thomson's *Bibliog. of Ohio*, no. 533, etc., and Pilling's *Eskimo Bibliog.*, 43). Louis Cass's criticism on Heckewelder is in *No. Am. Rev.* Jan., 1826. Cf. Haven, *Archæol. U. S.*, 43.

[11] *Description of the Antiquities discovered in the State of Ohio and other Western States, with engravings from actual surveys* (Worcester, Mass., 1820). This was reprinted in the *Writings of Caleb Atwater* (Columbus, 1833). This volume also included his *Observations made on a tour to Prairie du Chien in 1829* (Columbus, 1831), where Atwater was sent by the Federal government to purchase mineral lands of the Indians (P. G. Thomson's *Bibl. of Ohio*, no. 52; Pilling, *Bibl. of Siouan Lang.*, p. 2). The part originally published in the *Archæol. Amer.* was translated by Malte Brun in *Nouv. Annales de Voyages*, xxviii., who added a paper on "L'origine et l'époque des monumens de l'Ohio." Cf. Haven's *Archæol. U. S.*, 33, and the memoir of Atwater in *Am. Antiq. Soc. Proc.*, Oct., 1867.

[12] Including those of Newark, Perry County, Marietta, Circleville, Paint Creek, Little Miami, Piketon, etc.

During the next twenty-five years there cannot be said to have been much added to a real knowledge of the subject. Yates and Moulton in their *Hist. New York* (1824) borrowed mainly from Kirkland (1788) the missionary. Humboldt had no personal contact with the remains to give his views any value (1825). Warden in his *Recherches* (1827) gave some new plans and rearranged the old descriptions. There was some sober observation in M'Culloh's *Researches* (3d ed., 1829); some far from sober in Ratinesque (1838); some compiled descriptions with worthless comment in Josiah Priest's *American Antiquities* (Albany, 1838); something like scientific deductions in S. G. Morton's study of the few moundbuilders' skulls then known, in his *Cranea Americana* (1839); with an attempt at summing up in Delafield (1839) and Bradford (1841). This is about all that had been added to what Atwater did, when E. G. Squier and E. H. Davis eclipsed all labors preceding theirs, and began the series of the *Smithsonian Contributions* with their *Ancient Monuments of the Mississippi Valley* (Washington, 1847 and 1848).[1] During the preceding two years they had opened over two hundred mounds, and explored about a hundred earthwork enclosures, and had gathered a considerable



COL. CHARLES WHITTLESEY.*

collection of specimens of moundbuilders' relics.[2] They had begun their work under the auspices of the American Ethnological Society, but the cost of the production of the volume exceeded the society's resources, and the transfer was made to the Smithsonian Institution. The work took a commanding position at once, and still remains of essential value, though some of the grounds of its authors are not acceptable to present observers; and indeed in his work on the mounds of New York, which the Smithsonian Institution included in the second volume of their *Contributions*, Squier found occasion to alter some of his opinions in his earlier work, or at least to ascribe the mounds of that State to the Iroquois. The third volume of the same *Contributions* (1852) introduces to us one of the ablest of the local investigators in a paper by Charles Whittlesey, of "Descriptions of Ancient Works in Ohio," — the forerunner of numerous papers which he has given

[1] Haven, 117. This publication was anticipated by a condensed statement in Squier's *Observation on the Aboriginal Monuments of the Mississippi Valley*, in the second volume of the *Trans. Amer. Ethnol. Soc.* (N. Y., 1847), and in his *Observations on the Uses of the Mounds of the West, with an attempt at their Classification* (New Haven, 1847). Cf. also *Harper's Mag.*, xx. 737; xxi. 20, 165; *Amer. Jour. Science*, lxi. 305.

[2] These went in 1863 to the Blackmore collection in Salisbury, Eng., and are described in Stevens' *Flint Chips*.

* After a photograph kindly furnished by the Hon. C. C. Baldwin, of Cleveland, Ohio, who has printed a memorial of his friend with a list of his writings in *Tract 68 of the Western Reserve Hist. Soc.*

to the public in elucidation of the mounds.[1] Three years later (1855), in the seventh volume of the *Smithsonian Contributions*, a new field in the emblematic and animal mounds of the northwest was for the first time brought to any considerable extent to public attention in the paper by Increase A. Lapham, on the "Antiquities of Wisconsin." Lapham had made his explorations under the auspices of the American Antiquarian Society,[2] and his manuscript had been revised by Haven, when it was decided to consign it for publication to the Smithsonian Institution.

INCREASE A. LAPHAM.*

The animal mounds had been indeed earlier mentioned, and the great serpent mound of Ohio had long attracted attention; but it was in the territory now known as Wisconsin that these mounds were found chiefly to abound. Long, in 1823, speaks of mounds in this region; but the forest coverings seem to have prevented any observer detecting their shapes till Lapham first noted this peculiarity in 1836. In April, 1838, R. C. Taylor was the earliest to figure them in the *Amer. Journal of Science* (Silliman's), and again they were described by S. Taylor in *Ibid.*, 1842. Prof. John Locke referred to them in a *Report on the mineral lands of the United States*, made to Congress in 1844. William Pidgeon, who had been a trader among the Indians, published in his *Traditions of De-coo-dah, and Antiquarian researches: comprising extensive exploration, surveys and excavations of the Mound Builders in America; the traditions of the last Prophet of the Elk Nation, relative to their origin and use, and the evidences of an ancient population more numerous than the present Aborigines* (N. Y., 1853; again 1858) what he pretended was in large part the results of his intercourse with an Indian chief, in volving some theories as to the symbolism of the mounds. The book contained so many palpable perversions, not to say undisguised fictions, that the Smithsonian Institution refused to publish it;[3] and the book has never gained any credit, though some unguarded writers have unwittingly borrowed from it.[4]

In the eighth volume of the *Smithsonian Contributions*,[5] Haven, the librarian of the Amer. Antiq. Soc., summed up the results of mound exploration as they then stood. The steady and circumspect habit of Haven's mind was conspicuous in his treatment of the mounds. It is to him that the later advocates of the identity of their builders with the race of the red Indians look as the first sensibly to affect public opinion in the matter.[6] He argued against their being a more advanced race (p. 154), and in his *Report* of the Am. Antiq. Soc., in 1877 (p. 37), he held that it might yet be proved that the moundbuilders and red Indians were one in race, as M'Culloh had already suggested.

At the time when Haven was first intimating (1856) that this view might yet become accepted, it was doubtless held to be best established that those who built the mounds were quite another race from those who lived among them when Europeans first knew the country. The fact that the Indians had no tradition of their origin was held to be almost conclusive, though it is alleged that the southern Indians in later times retained no recollections of the expedition of De Soto, and Dr. Brinton thinks that it is common for Indian traditions to die out.[7] It is not till recent years that any considerable number of moundbuilder skulls have been known, and from the scant data which the early craniologists had, their opinion seems to have coincided with those in favor of a vanished race.[8] It was a favorite theory, not yet wholly departed, that they were in some way connected with the more southern peoples, the Pueblo Indians, the Aztecs, or the Peruvians; either

[1] Cf. *Trans. Amer. Asso. Adv. Sci.*, 1873, and a paper "On the weapons and military character of the race of the mounds" in the *Boston Soc. Nat. Hist. Mem.*, i. 473 (1869).

[2] *Proceedings*, Oct. 23, 1852, where are plans of those at Crawfordsville, and of others in the dividing ridge between the Mississippi and the Kickapoo rivers. Cf. *Ibid.* Oct., 1876.

[3] P. G. Thomson's *Bibliog. of Ohio*, no. 925.

[4] As, for instance, Conant's *Footprints of Vanished Races* (1879). Cf. T. H. Lewis in the *Amer. Journal of Archæology*, Jan., 1886 (ii. 65).

[5] *Archæology of the U. S.* (1856).

[6] M'Culloh in 1829 had come to a similar conclusion, and Gallatin and Schoolcraft have somewhat followed him.

[7] *Hist. Mag.*, Feb., 1866. Cf. Charlevoix.

[8] This was Dr. J. C. Warren's view in 1837, in a paper before the *Brit. Asso. Adv. Science*. Cf. also Blumenbach, Morton, Nott, and Gliddon.

* Engraved from a photograph dated 1863, kindly furnished by his friend, Prof. J. D. Whitney. Lapham died in 1875. Cf. *Amer. Journal of Science*, x. 320; xi. 326, 333; *Trans. Wisc. Acad. Science*, iii. 264.

that they came from them, or migrated south and became one with them.[1] The bolder theory, that we see their descendants in the red Indians, is perhaps gaining ground, and it has had the support of the Bureau of Ethnology and some able expounders.[2]

THE GREAT SERPENT MOUND.*

[1] Bancroft (*Nat. Races*, v. 539) thinks they were connected in some obscure way with these southern nations, and in 1875 could write (p. 787) that "most and the best authorities deem it impossible that the moundbuilders were ever the remote ancestors of the Indian tribes." Dawson (*Fossil Men*, 55) deems the modern Pueblo Indians to be their representatives. Brasseur supposes the Toltecs came from them. (Cf. also Short, 492; and S. B. Evans, in *Kansas City Rev.*, March, 1882.) John Wells Foster, who had for some years written on the subject, gathered his results in a composite volume, *Prehistoric Races of the United States* (Chicago, 1873, 1878, 1881, etc.), in which he held to the theory of their migrating south and developing into the civilization of Central America. Cf. his paper in the *Trans. Chicago Acad. Nat. Sci.*, vol. i., and his abstract of it in his *Mississippi Valley* (1869, p. 415). J. P. MacLean's *Moundbuilders* (Cincinnati, 1879) takes similar ground. Morgan (*Peab. Mus. Rept.*, xii. 552) holds that they cannot be classed with any known Indian "stock," and that the "nearest region from which they could have been derived is New Mexico." Wills de Haas takes exception to this view in the *Trans. Anthropological Soc. of Washington* (1881). Cf. R. S. Robertson in *Compte Rendu, Congrès des Américanistes* (1877), xi. 39.

[2] Major Powell says, that years ago he reached the conclusion that the modern Indians must have raised at least some of the mounds in the Mississippi Valley (*Bur. of Ethnol. Rept.*, iv. p. xxx). Cf. also Powell's paper in *Science*, x. 267. In the second of these reports (p. 117) Henry W. Henshaw sets forth the views, which the Bureau maintained; and he defended these views in the *Amer. Antiquarian*, viii. 102. The leading member, however, of the Bureau staff, who is working in this field, is Cyrus Thomas. In the *Nat. Mus. Report* (1887) he defined the aim and character of the *Work in Mound Exploration of the Bureau of Ethnology*, also issued separately. In this it was stated that over 2,000 mounds had been opened, and 38,000 relics gathered from them; but nothing to afford any clue to the language which the moundbuilders spoke. The conclusions reached were: —

First, the mounds are as diversified as the Indian tribes are.

Second, they yield no signs of a superior race.

Third, their builders and the Indians are the same.

Fourth, the accounts of the early European visitors of the Indians found here correspond to the disclosures of the mounds.

Fifth, certain kinds of mounds in certain localities are the work of tribes now known; and there are no signs about the mounds to connect them with the Pueblo Indians or those farther south.

Thomas, in the *Fifth Report* (1888) described the "Burial Mounds of the northern sections of the U. S." He says that the character of the mounds and their contents indicate the possibility of dividing the territory they occupy roughly into eight districts, each with some promi-

* This follows a survey given in Squier's *Serpent Symbol* (N. Y., 1851), p. 137. It is criticised by Putnam in *Peabody Museum Reports*, xviii. 348, and *Amer. Antiq. Soc. Proc.*, Oct., 1883. Putnam has recently purchased over sixty acres about the effigy, which is to be held by the trustees of the Peabody Museum as a park (*Repts.*, xxi. 14); and his recent explorations show that the projections in the side of the head (shaded dark in the cut) are not a part of the construction. He also finds two distinct periods of occupation in this region, to the oldest of which he attributes this work (*Peab. Mus. Rept.* 1888). W. H. Holmes made a survey in 1886 (*Amer. Antiquarian*, May, 1887, ix. 141; *Science*, viii. 624, Dec. 31, 1886). Cf. J. P. MacLean, in *Amer. Antiquarian*, vii. 44, and his *Moundbuilders*, p. 56; Baldwin's *Anc. America*, 29. T. H. Lewis describes a snake mound in Minnesota (*Science*, ix. 393). On the serpent symbol see S. D. Peet, in *Amer. Antiquarian*, viii. 197; ix. 13, where he manifests a somewhat omnivorous appetite.

Of the opposing theory of a disappeared race, Capt. Heart in reply to Barton (*Amer. Philolog. Asso. Proc.* iii.) gave, as Thomas thinks, "the earliest clear and distinct expression," but Squier and Davis may be considered as first giving it definite meaning; and though Squier does not seem to have actually revoked this judgment as respects the mounds in the Mississippi valley, he finally reached the conclusion that those in New York were really the work of the Iroquois.[1] This ancient-race theory, sometimes amounting to a belief in their autochthonous origin, has impressed the public through some of the best known summaries of American antiquities, like those of Baldwin, Wilson, and Short,[2] and has been adopted by men of such reputation as Lyell.[3] The position taken by Professor F. W. Putnam, the curator of the Peabody Museum of Archæology at Cambridge, is much like that taken earlier by Warden in his *Recherches*, that both views are, within their own limitations, correct, and, as Putnam expresses it, "that many Indian tribes built mounds and earthworks is beyond doubt; but that all the mounds and earthworks of North America are by these same tribes, or their immediate ancestors, is not thereby proved."[4] Thomas (*Fifth Report, Bureau Ethnol.*) holds this statement to be too vague. It is certainly shown in the whole history of archæological study that uncompromising demarcations have sooner or later to be abandoned.

Morgan finds it difficult to dissociate the mounds with his favorite theory of communal life.[5] There is no readier way of marking the development of opinion on this question than to follow the series of the *Annual Reports* of the Smithsonian Institution, as hardly a year has passed since 1861 but these *Reports* have had in them contributions on the subject.[6] Among periodicals, the more constant attention to the mounds is conspicuous in the *American Antiquarian*.[7]

nent characteristic, and he roughly distinguishes these sections as of Wisconsin; the Upper Mississippi; Ohio; New York; Appalachian; the Middle Mississippi; the Lower Mississippi and the Gulf. He holds that the moundbuilding people existed from about the fifth or sixth century down to historic times.

Taking for his texts the mounds of the Appalachian districts, he has presented anew his grounds for believing this region at least to have had the red Indian race for the constructors of its mounds, and that the Cherokees were that race. Carr had already (1876), from investigating a truncated oval mound in Virginia, and comparing it with Bartram's (*Travels*, 365) description of a Cherokee council-house (*Peabody Mus. Rept.*, x. 75), reached the conclusion that that particular mound was built by the Cherokees. Thomas further undertakes to prove that the Cherokees once occupied the Appalachian region, and that implements of the white men are found in some of the mounds, bringing them down to a period since the contact with Europeans. The habits of the builders of these mounds are, as he affirms, known to correspond to what we know from historic evidence were the habits of the Cherokees.

Thomas has also communicated the views of the Bureau in other ways, as in the *Amer. Antiquarian*, vi. 90; vii. 65; *Mag. Amer. Hist.*, May, 1884, p. 396; 1887, p. 193; July and Sept., 1888. In these papers, among other points, he maintains that the defensive enclosures of northern Ohio are due to the Iroquois-Huron tribes, and he accepts the view of Peet and Latham, that the animal mounds are more ancient than the simpler forms. Other investigators have adopted, in some degree, this view. Horatio Hale thinks the Cherokees of Iroquois origin, and that they may have mingled with the moundbuilders. C. C. Baldwin holds the Allegheni, Cherokees, and the moundbuilders to be the same.

Prominent among those who have adopted this red-Indian theory are Judge M. F. Force and Lucien Carr. In 1874 Force published at Cincinnati a paper, which he read before the literary club of that city; and in 1877 he prepared a paper on the race of the mound-builders, which appears in French in the *Compte Rendu, Congrès des Américanistes* (1877, i. p. 121), and in English, *To what Race did the Moundbuilders belong* (Cincinnati, 1875). He maintains that the race, which shows no differences from the modern Indians, flourished till about 1,000 years ago, and that some of them still survived in the Gulf States in the sixteenth century, and that their development was about on the plane of the Pueblos, higher than the Algonquins and lower than the Aztecs.

Carr's *Mounds of the Mississippi Valley historically considered* makes part of the second volume of Shaler's *Kentucky Survey*, and was also issued separately (1883). It is the most elaborate collation of the accounts of the early travellers, and of others coming in contact with the Indians at an early day, which has yet been made, and his foot-notes are an ample bibliography of this aspect of the subject. He holds that these early records prove that nothing has been found in the mounds which was not described in the early narratives as pertaining to the Indians of the early contact. He aims also particularly to show that these early Indians were agriculturists and sun-worshippers. Brinton, reviewing the paper in the *American Antiquarian* (1883, p. 68), holds that Carr goes too far, and practises the arts of a special pleader. Brinton's own opinions seem somewhat to have changed. In the *Hist. Mag.*, Feb., 1866, p. 35, he considers the moundbuilders as not advanced beyond the red Indians; and in the *American Antiquarian* (1881), iv. 9, in inquiring into their probable nationality, he thinks they were an ancient people who were driven south and became the moundbuilding Chahta.

Other supporters of the red Indian view are Edmund Andrews, in the *Wisconsin Acad. of Science*, iv. 126; P. R. Hoy, in *Ibid.* vi.; O. T. Mason, in *Science*, iii. 658; Nadaillac, in *L'Amérique préhistorique*; E. Schmidt, in *Kosmos* (Leipzig), viii. 81, 163; C. P. Thurston, in *Mag. Amer. Hist.*, 1888, xix. 374.

[1] This is denied in Fred. Larkin's *Anc. Man in America* (N. Y.).

[2] J. D. Baldwin's *Anc. America* (N. Y., 1871). D. Wilson's *Prehistoric Man*, i. ch. 10, etc., who holds that "the moundbuilders were greatly more in advance of the Indian hunter than behind the civilized Mexican;" and he claims that the proof deduced from the Indian type of a head discovered in a moundbuilder's pipe (i. 366) is due to a perverted drawing in Squier and Davis. Short, *No. Amer. of Antiq.*, believed they were of the race later in Anahuac. Gay, *Pop. Hist. U. S.*, i. ch. 2, believes in the theory of a vanished race. In 1775 Adair thought the works indicated a higher military energy than the modern Indian showed.

[3] *Antiq. of Man*, 4th ed. 42.

[4] Putnam's papers and the records of his investigations can be found in his *Peabody Mus. Reports*, xvii., xviii., xix., xx., etc. *Proc. Boston Soc. Nat. Hist.*, xv.; *Amer. Naturalist*, June, 1875; *Kansas City Rev.*, 1879, etc.

[5] *No. Am. Rev.*, cxxiii., for "houses of the moundbuilders," and also in his *Houses and House Life*, ch. 9. Cf. on the other hand C. Thomas in *Mag. Amer. Hist.*, Feb., 1884, p. 110.

[6] Rhee's *Catalogue*, p. 252–3.

[7] S. D. Peet, who edits this journal, has advanced in

The basis for estimating the age of the mounds is threefold. In the first place, there are very few found on the last of the river terraces to be reclaimed from the stream. In the second place, the decay of the skeletons found in them can be taken as of some indication, if due regard be had to the kind of earth in which they are buried. Third, the age of trees upon them has been accepted as carrying them back a certain period, at least, though this may widely vary, if you assume their growth to be subsequent to the abandonment of the mounds, or if, as Brinton holds,[1] the trees were planted immediately upon the building. The dependence upon counting the rings is by no means a settled opinion as to all climes; but in the temperate zone the best authorities place dependence upon it. Unfortunately it cannot carry us back much over 600 years.[2]

The early attempts to disclose the ethnological relations of the moundbuilders on cranial evidence were embarrassed by the fewness of the skulls then known. Morton (*Crania Americana*) called the four examined by him identical with those of the red Indian.[3] At present, considerable numbers are available; but still Wilson (*Prehistoric Man*, ii. 128) holds that "we lack sufficient data," and in the consideration of them sufficient care has not always been taken to distinguish intrusive burials of a later date.[4]

J. W. Foster (*Prehist. Races*, ch. 8; *Amer. Assoc. Adv. Sci. Trans.*, 1872; and *Amer. Naturalist*, vi. 738) held to a lower type of skull, on this evidence, than Wilson (*Prehist. Man*, ii. ch. 20) contended for. There are examples of the wide difference of views (MacLean, 142), when some, like Morgan, connect them with the Pueblo skulls (*No. Amer. Rev.*, cix., Oct., 1869), and others, like Morton, Winchell, Wilson, Brasseur, and Foster, find their correspondences in those of Mexico and Peru.[5] Putnam, whose experience with mound skulls is greatest of all, holds to the southern short head and the northern long head (*Rept.* 1888). Probably we have no better enumeration of the variety of objects and relics found in the mounds, though much has since been added to the collection, than in Rau's *Catalogue of the Archæological Collection of the National Museum* (Washington, 1876).[6] Unfortunately he shows little or no discrimination between discoveries in the mounds and those of the surface. The interest in such collections has naturally brought prominently to the attention of every student of such collections the tricks of fraudulent imitators, and there are several well-known instances of protracted controversies on the genuineness of certain relics.[7]

one of his papers (vii. 82) that some of these earthworks are Indian game drives and screens. (He also contributed a classification of them to the *Congrès des Américanistes*, 1877, i. 103.) The paper by J. E. Stevenson (ii. 89), and that by Horatio Hale on "Indian Migrations" (Jan.-April, 1883), are worth noting. The *Compte Rendu, Congrès des Américanistes*, 1875 (i. 387), has Joly's "Les Moundbuilders, leurs Œuvres et leurs Caractères Ethniques," and that for 1877 has a paper by John H. Becker and Stronck. That by R. S. Robertson in *Ibid.* (i. p. 39) is also reprinted in the *Mag. Amer. Hist.* (iv. 174), March, 1880; while in March, 1883, will be found some of T. H. Lewis's personal experiences in exploring mounds. Some other periodical papers are: W. de Haas, in *Trans. Am. Asso. Adv. Science*, 1868; D. A. Robertson, in *Journal Amer. Geog. Soc.*, v. 256; A. W. Vogeles and S. L. Fay, in *Amer. Naturalist*, xiii. 9, 637; E. B. Finley in *Mag. Western Hist.*, Feb., 1887, p. 439; *Science*, Sept. 14, 1883; Squier, in *American Journal Science*, liii. 237, and in *Harper's Monthly*, xx. 737, xxi. 20, 165; C. Morris, in *Nat. Quart. Rev.*, Dec. 1871, 1872, April, 1873; Ad. F. Fontpertius on "Le peuple des mounds et ses monuments" in the *Rev. de Géog.* (April and August, 1881); E. Price, in the *Annals of Iowa*, vi. 121; Isaac Smucker, in *Scientific Monthly* (Toledo, Ohio), i. 100.

Some other references, hardly of essential character, are: H. H. Bancroft, *Nat. Races*, iv. ch. 13; v. 538; Gales's *Upper Mississippi, or Historical Sketches of the Moundbuilders* (Chicago, 1867); Southall's *Recent Origin of Man*, ch. 36; Wm. McAdams's *Records of ancient races in the Mississippi valley; being an account of some of the pictographs, sculptured hieroglyphs, symbolic devices, emblems and traditions of the prehistoric races of America, with some suggestions as to their origin* (St. Louis, 1887); Brühl's *Culturvölker des alten Amerika;* J. D. Sherwood, in Stevens's *Flint Chips*, 341; E. Pickett's *Testimony of the Rocks* (N. Y.).

[1] *Hist. Mag.*, Feb., 1866.

[2] Cf. *Congrès des Amér.*, 1877, i. 316; C. Thomas in *Amer. Antiq.*, vii. 66; Warden's *Recherches*, ch. 4; Baldwin's *Anc. America*, ch. 2.

[3] Cf. Short, p. 158.

[4] Force, *To what Race*, etc., p. 63.

[5] Cf. Henry Gillman's "Ancient Men of the Great Lakes" in *Amer. Assoc. Adv. Sci.* (Detroit, 1875), pp. 297, 317; *Boston Nat. Hist. Soc. Proc.*, iv. 331; *Smithsonian Rept.*, 1867, p. 412; C. C. Jones's *Antiq. Southern Indians; Peabody Mus. Repts.*, iv., vi., xi.; Jos. Jones's *Aborig. Remains of Tennessee;* Jeffries Wyman in *Am. Journal of Arts*, etc, cvii. p. i.; W. J. McGee in *Ibid.* cxvi. 458; and Dr. S. F. Landrey on "A moundbuilder's brain" in *Pop. Science News* (Boston, Oct., 1886, p. 138).

[6] Cf. Holmes's "Objects from the Mounds" in Powell's *Bur. of Ethnol. Repts.*, iii.; C. C. Baldwin's "Relics of the Moundbuilders" in *West. Reserve Hist. Soc. Tract*, no. 23 (1874); Foster on their stone and copper implements in *Chicago Acad. Science*, i. (1869); objects from the Ohio mounds in Stevens's *Flint Chips*, 418; images from them in *Science*, April 11, 1884, p. 437. In the mounds of the Little Miami Valley, native gold and meteoric iron have been found for the first time (*Peab. Mus. Rept.*, xvi. 170).

[7] See, on such impositions in general, MacLean's *Moundbuilders*, ch. 9; C. C. Abbott in *Pop. Sci. Monthly*, July, 1885, p. 308; Wilson's *Prehist. Man*, ii. ch. 19; Putnam in *Peab. Mus. Repts.*, xvi. 184; *Fourth Rept. Bur. Ethnol.* 247.

The best known of the disputed relics are the following: The largest mound in the Ohio Valley is that of the Grave Creek, twelve miles below Wheeling, which was earliest described by its owner, A. B. Tomlinson, in 1838. It is seventy feet high and one thousand feet in circumference. (Cf. Squier and Davis, Foster, MacLean, *Olden Time*, i. 232; and account by P. P. Cherry — Wadsworth, 1877.) About 1838 a shaft was sunk by Tomlinson into it, and a rotunda constructed in its centre out of an original cavity, as a showroom for relics; and here, as taken from the mound, appeared two years later what is known as the Grave Creek stone, bearing an inscription of inscrutable characters. The supposed relic soon attracted attention. H. R. Schoolcraft pronounced its twenty-two characters such "as were used by the Pelasgi," in his *Observations respecting the Grave creek mound, in Western Virginia; the antique inscription discovered in its excavation; and the connected evidence of the occupancy of the Mississippi valley during the mound period, and prior to the discovery of America by Columbus*, which appeared in the *Amer. Ethnological*

There remains in this survey of the literature of the mounds in all their varieties, to go over it, finally, in relation to their geographical distribution :[1] —

New England is almost destitute of these antiquities. The one that has attracted some attention is what is described as a fortification in Sanbornton, in New Hampshire, which when found was faced with stone externally, and the walls were six feet thick and breast-high, when described about one hundred and fifteen years ago. There is a plan of it, with a descriptive account, preserved in the library of the American Antiq. Society,[2] and another plan and description in M. T. Runnels's *Hist. of Sanbornton* (Boston, 1882), i. ch. 4. Squier also figured it.

As we move westward, the mounds begin to be numerous in the State of New York, and particularly in the western part of it. One of the earliest descriptions of them, after that of the missionary Kirkland (about 1788), is in the "Journal of the Rev. John Taylor while on a mission through the Mohawk and Black River Country in 1802," which was first printed, with plans of the works examined, in the *Documentary Hist. New York* (vol. iii. quarto ed.). In 1818 DeWitt Clinton published at Albany his *Memoir on the Antiquities of*

CINCINNATI TABLET.*

Soc. Trans., i. 367 (N. Y., 1845). Cf. his *Indian Tribes*, iv. 118, where he thinks it may be an "intrusive antiquity." The French savant Jomard published a *Note sur une pierre gravée* (Paris, 1845, 1859), in which he thought it Libyan. Lévy-Bing calls it Hebrew in *Congrès des Amér.* (Nancy, i. 215). Other notices are by Moïse Schwab in *Revue Archéologique*, Feb., 1857; José Perez in *Arch. de la Soc. Amér. de France* (1865), ii. 173; and in America in the *Amer. Pioneer*, ii. 197; Haven's *Archæol. U. S.*, 133, and *Amer. Antig. Soc. Proc.*, April 29, 1863, pp. 13, 32; *Amer. Antiquarian*, i. 139; Bancroft's *Nat. Races*, v. 75.

Squier promptly questioned its authenticity (*Amer. Ethnol. Soc. Trans.*, ii.; *Aborig. Mts.*, 168). Wilson laughed at it (*Prehistoric Man*, ii. 100). Col. Whittlesey has done more than any one to show its fraudulent character, and to show how the cuts of it which have been made vary (*Western Reserve, Hist. Soc. Tracts*, nos. 9 (1872), 33 (1876), 42 (1878), and 44 (1879).) Cf. on this side Short, p. 419; and *Fourth Rept. Bur. Ethnol.*, 250. Its authenticity is, however, maintained by MacLean (*Moundbuilders*, Cinn., 1879), who summarizes the arguments *pro* and *con*.

What is known as the Cincinnati tablet was found on the site of that city in 1841 (*Amer. Pioneer*, ii. 195). Squier accepted it as genuine, and thought it might be a printing-stone for decorating hides (*Amer. Ethnol. Soc. Trans.*, ii.; *Aborig. Mts.* (1847), p. 70). Whittlesey at first doubted it (*West. Res. Hist. Tracts*, no. 9), but was later convinced of its genuineness by Robert Clarke's *Prehistoric Remains found on the site of Cincinnati* (privately printed, Cinn., 1876).

The so-called Berlin tablet was found in Ohio in 1876. S. D. Peet believes it genuine (*Amer. Antiq.*, i. 73; vii. 222).

On the Rockford tablet, see Short, 44.

The Davenport tablets, found by the Rev. J. Gass in a mound near Davenport, in Jan., 1877, are described in the *Davenport Acad. Proc.*, ii. 96, 132, 221, 349; iii. 155. Cf. further in *Amer. Asso. Adv. Science Proc.* (April, 1877), by R. J. Farquharson; *Congrès des Amér.* (1877, ii. 158, with cut). The *American Antiquarian* records the controversy over its genuineness. In vol. iv. 145, John Campbell proposed a reading of the inscription. The suspicions are set forth in vii. 373. Peet, in viii. 46, inclines to consider it a fraud; and, p. 92, there is a defence. Short (pp. 38–39) doubts. In the *Second Amer. Rept. Bur. of Ethnol.*, H. W. Henshaw, on "Animal Carvings," attacked its character. (Cf. *Fourth Rept.*, p. 251.) A reply by C. E. Putnam in vol. iv. of the *Davenport Acad. Proc.*, and issued separately, is called *Vindication of the Authenticity of the Elephant pipes and inscribed tablets in the Mus. of the Davenport Acad.* (Davenport, Iowa, 1885). Cf. Cyrus Thomas in *Science*, vi. 564; also Feb. 5, 1886, p. 119. The question of the elephant pipes is included in the discussion, some denying their genuineness. Cf. also *Amer. Antiq.*, ii. 67; Short, 531; Dr. Max Uhle in *Zeitschrift für Ethnologie*, 1887.

[1] It has been found convenient to follow an advancing line of geographical succession, but the affiliations of the peoples of the mounds seem to indicate that those dwelling on both slopes and in the valleys of the Appalachian ranges should be grouped together, as Thomas combines them in his section on the mounds of the Appalachian District. (*Fifth Rept. Bur. Ethnol.*)

[2] *Proc.*, Oct. 23, 1849, p. 13; Belknap's *New Hampshire*, iii. 89; Haven's *Archæol. U. S.*, 42.

* After a cut in Wilson's *Prehistoric Man*, i. 274, engraved from a rubbing taken from the original. Wilson adds: "Mr. Whittlesey has included this tablet among his Archæological Frauds; but the result of inquiries made by me has removed from my mind any doubt of its genuineness." Cf. other cuts in M. C. Read, *Archæol. of Ohio* (1888); Squier and Davis, fig. 195; Short, p. 45; MacLean, 107; and *Second Rept. Bur. of Ethnol.*, pp. 133–34.

the western part of New York, in which he attributes their origin to the Scandinavians.[1] They were again described in David Thomas's *Travels through the western country in 1816* (Auburn, 1819). There is not much else to note for twenty-five years. In 1845, Schoolcraft made to the N. Y. Senate his *Report on the Census of the Iroquois Indians* (Albany and N. Y., 1846, 1847, 1848), which is better known, perhaps, in the trade edition, *Notes on the Iroquois; or Contributions to the Statistics, Aboriginal History, Antiquities and General Ethnology of Western New York* (N. Y. 1846). In 1850, the *Third Report* of the Regents of the University of the State of N. Y. contains F. B. Hough's paper on the earthwork enclosures in the State. with cuts. The same year (1850) came the essential authority on the New York mounds, **E. G.** Squier's *Aboriginal Monuments of the State of N. Y., comprising the results of original surveys and explorations, with an illustrative appendix* (Washington, 1850), which the next year made part of the second volume of the *Smithsonian Contributions*.[2] He enumerates in New York about 250 defensive structures, beside burial mounds and in his appendix describes those in New Hampshire and some in Pennsylvania.[3] Some new explorations of the New York mounds were made in 1859 by T. Apoleon Cheney, who describes them, giving plans and cuts, in the *Thirteenth Report* of the Regents of the University.[4]

It was, however, in Ohio that the interest in these mounds was first incited, and that the more thorough

ANCIENT WORKS ON THE MUSKINGUM.*

[1] D. A. Robertson, *Journal Amer. Geog. Soc.*, vol. v., contends that the North American mounds were built by a colony of Finns long before the Christian era.

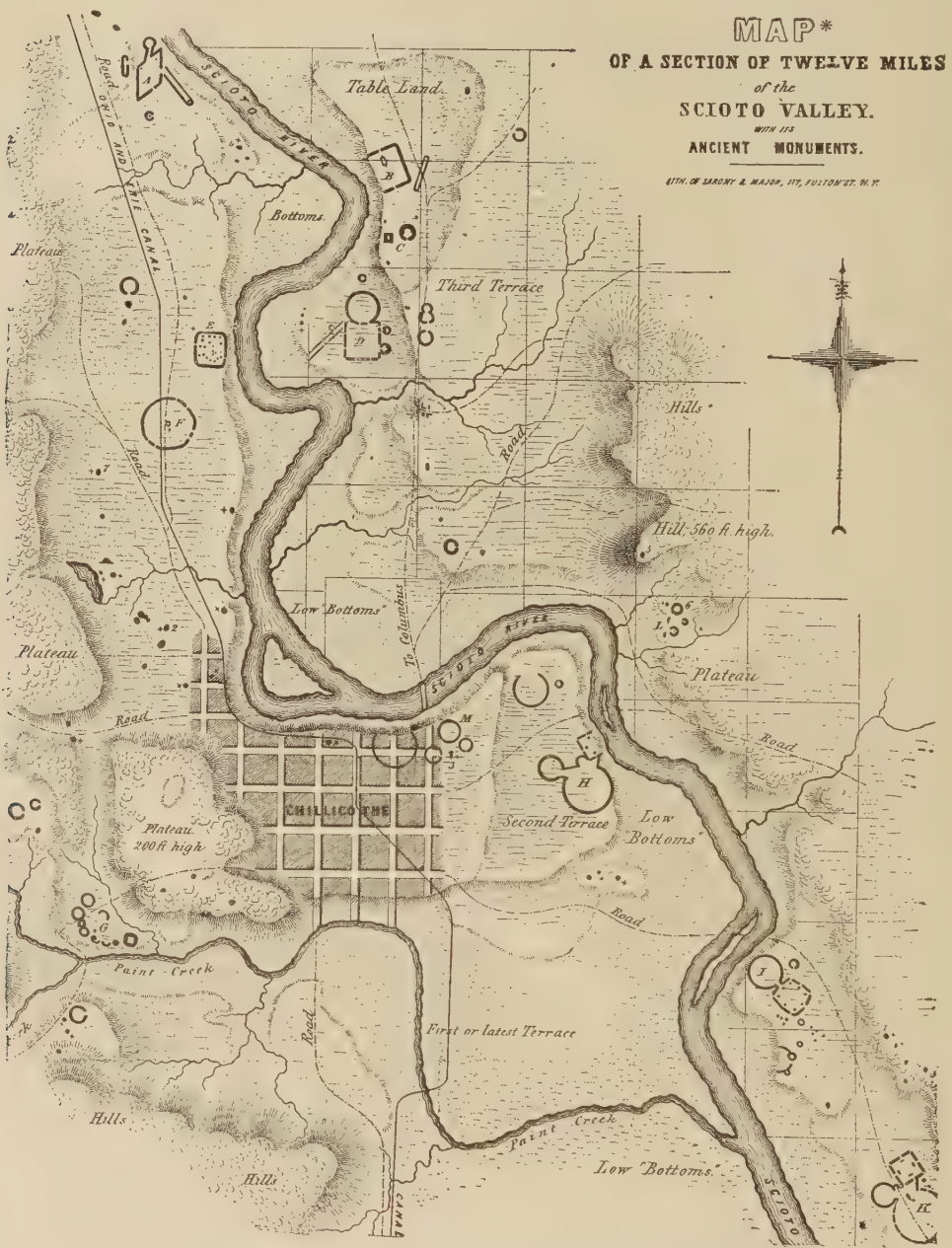
[2] It was also issued, with some additional matter, at Buffalo (1851) as *Antiquities of New York State, with supplement on Antiquities of the West* (1851). Squier has also at this time a paper on these mounds in *N. Y. Hist. Soc. Proc.*, Jan., 1849, p. 41. Cf. *Am. Journal of Science*, lxi. 305, and *Harper's Monthly*, xx. and xxi. His conclusions, distinct from those pertaining to the Ohio mounds, were that the N. Y. earthworks were raised by the red Indians.

[3] Cf. W. M. Taylor on a Pennsylvania mound in *Smithsonian Rept.*, 1877.

[4] A few minor references may be given. The *Smithsonian Reports* have papers by D. Trowbridge (1863); and by F. H. Cushing on those of Orleans County (1874). W. L. Stone held them to have been built by Egyptians, who afterward went south (*Mag. Amer. Hist.*, Sept., 1878, ii. 533). Cf. *Ibid.* v. 35, and S. L. Frey in the *Amer. Naturalist*, Oct., 1879. A small book, *Ancient Man in America* (N. Y., 1880), by Frederic Larkin, takes issue with Squier, and believes the builders were not the modern Indians. He says he found in one of the N. Y. mounds, in 1854, a copper relic, with a mastodon, evidently in harness, scratched upon it! H. G. Mercer's *Lenape Stone* describes a "gorget stone" dug up in Buck's County, Penn., in 1872, which shows a carving representing a fight between Indians and the hairy mammoth, which we are also asked to accept as genuine. What is recognized as an ancient burial mound of the Senecas is described at some length in G. S. Conover's *Reasons why the State should acquire the famous burial mound of the Seneca Indians* (1888).

* Reduced from an early engraving in T. M. Harris's *Journal of a Tour into the territory northwest of the Alleghany, 1803* (Boston, 1805). Harris's plan in relation to the new town of Marietta is given in Vol. VII. p. 540. To follow down the plans chronologically, we find that of Winthrop Sargent, communicated to the Amer. Academy in 1787, reproduced in their *Memoirs*, new ser. v. part i. The *Columbian Mag.*, May, 1787, vol. i. 425, and the *N. Y. Mag.* (1791) had plans. One was in Schultz's *Travels* (1807), 146. Atwater, of course, gave one in 1820. A survey by S. Dewitt, 1822, is in Josiah Priest's *Amer. Antiquities*, 3d ed., Albany, 1833. Others are in the *Amer. Pioneer*, Oct., 1842, June 1843, and in S. P. Hildreth's *Pioneer History*, 212 (Jan., 1843). Whittlesey made the survey in Squier and Davis (who also give a colored view), and it is reduced in Foster. Cf. also *Amer. Antiquarian*, Jan., 1880; *Mag. Amer. Hist.*, 1885, p. 547; Henry A. Shepard's *Antiquities of Ohio* (Cinn., 1887); Nadaillac's *L'Amérique préhistorique*, 105, and *Les prem. Hommes*, ii. 33.

exploration has been made.[1] The earliest pioneers reported upon them. Cutler described them in 1789 in a

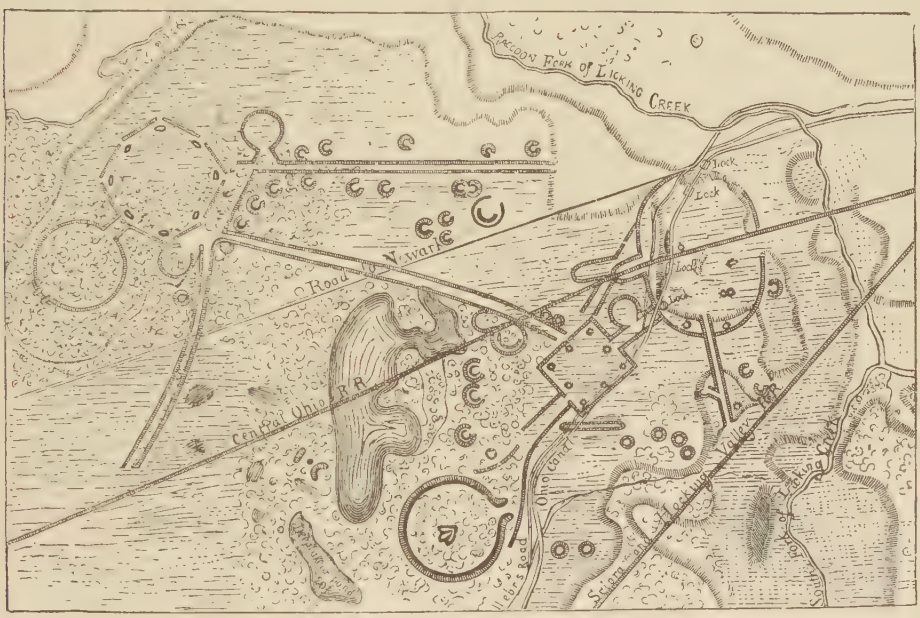


[1] Contributions to a bibliography and lists of the Ohio mounds are found as follows: Mrs. Cyrus Thomas's "Bibliog. of Earthworks in Ohio" in the *Ohio Archæol. and Hist. Quarterly*, June, 1887, et seq.; a lesser list is in Thomson's *Bibliog. of Ohio*, p. 385. Lists of the works are given in the *Ohio Centennial Rept.* and in MacLean's *Moundbuilders*, pp. 230–233. J. Smucker, in the *Amer. Antiquarian*, vi. 43, describes the interest in archæology in the State, and instances the results in the numerous county histories, in the Western Reserve Hist. Soc. pub-

* From E. G. Squier's *Aboriginal Monuments of the Mississippi Valley* (N. Y., 1847), taken from *Amer. Ethnol. Soc. Trans.*, ii. The letters A, B, C, etc. mark the ancient works. Enclosures are shown by broken lines. The mounds are designated by small dots. Some of the best maps which we have showing the geographical positions of groups of mounds accompany Thomas's paper in the *Fifth Rept., Bur. Ethnol.*

letter to Jeremy Belknap.[1] Benj. S. Barton described a mound at Cincinnati in 1799.[2] Dr. Harris in 1805 was seemingly the earliest traveller to note them in *Journal of a Tour*, where he gives one of the earliest engravings. A plan of those at Circleville, with description by J. Kilbourne, is given in the *Ohio Gazetteer* (Columbus, 1817). Caleb Atwater, in 1820, was more familiar with them than with others of his broader field. Warden in his *Recherches* noted the early describers. Gen. Harrison discussed the mounds in his *Discourse on the Aborigines of the Valley of the Ohio* (Cincinnati, 1838). Squier and Davis, of course, brought them within their range,[3] and Col. Whittlesey supplemented their work in the third volume of the *Smithsonian Contributions*. Whittlesey and Matthew C. Read contributed the Report on the Archæology of Ohio, which forms the second portion of the *Final Report of the Ohio State Board of Centennial Managers* (Columbus, 1877), and in it is a list of the ancient enclosures, which is not, as Short says (p. 82), as complete as it should be. A survey of the mounds was made by E. B. Andrews, and published in the *Peabody Mus. Repts.* (no. x.), 1877. The Ohio State Archæological and Historical Society started in June, 1887, the *Ohio archæological and historical Quarterly*, which has vigorously entered the field, and in it (March, 1888) G. F. Wright has reported on the present condition of the mounds. M. C. Read's *Archæology of Ohio* (Cleveland, 1888) was published by the Western Reserve Historical Society, whose series of Tracts is of importance for the study of the mounds.[4] Henry A. Shepard's *Antiquities of the State of Ohio* (Cincinnati, 1887) summarizes the discoveries to date.[5] Thomas (*Fifth Rept. Bur. Ethnol.*) claims that the Ohio mounds were built by Indians, but not by the Indians, nor by the ancestors of them, who inhabited this region at the coming of the whites; but by an Indian race driven south, of whom he finds the modern representatives in the Cherokees.

The works at Marietta, on the Muskingum River, were the earliest observed. Taking the southern and southeastern counties, there are no very conspicuous examples elsewhere, though the region is well dotted



THE WORKS AT NEWARK, OHIO.*

lications, in those of the Nat. Hist. Soc. of Cincinnati, of the Archæological Soc. at Madisonville, of the Central Ohio Scientific Association (begun 1878), and of the District Hist. Society (beginning its reports in 1877. Cf. P. G. Thomson, *Bibl. of Ohio*, no. 328). The course of the West. Reserve Hist. Soc. is sketched in the *Mag. West. Hist.*, Feb., 1888 (vol. vii.).

[1] *Life of Cutler*, ii. 14, 252.

[2] *Trans. Amer. Philos. Soc.*, iv.

[3] Their survey is used in Stevens's *Flint Chips* by Sherwood.

[4] Cf. no. 11, 23, 41.

[5] Some minor references: Whittlesey in *Fireland's Pioneer* (June, 1865), and in his *Fugitive Essays* (Hudson, O., 1852). C. H. Mitchener's *Ohio Annals* (Dayton, 1876). *Hist. Mag.*, xii. 240. C. W. Butterfield in *Mag. West. Hist.*, Oct., 1886 (iv. 777). I. Dille in *Smithsonian Rept.*, 1866, p. 359; and Hill and others in *Ibid.* 1877. C. Thomas in *Science*, xi. 314. Thomas J. Brown on artificial terraces in *Amer. Antiquarian*, May, 1888. Howe's *Hist. Collections of Ohio*, as well as the numerous county histories, afford some material.

* After a cut in Wilson's *Prehistoric Man*, i. 269, made from surveys "executed while the chief earthworks could still be traced in all their integrity;" and they "illustrate rites and customs of an ancient American people, without a parallel among the monumental memorials of the old world." Cf. Atwater, Warden, Squier and Davis, and MacLean.

with earthworks.[1] Those at Cincinnati were, after those at Marietta, the earliest to be noticed.[2] The adjacent Little Miami Valley is the region which Professor Putnam and Dr. Metz have been of late so successfully working.[3]

Of all the works in the central portions of Ohio, and indeed of all in any region, those at Newark, in Licking County, are the most extensive, and have been often described.[4] In the east[5] and west[6] there are other of these earthworks; but those in the north have been particularly examined by Col. Whittlesey and others.[7] The enclosure called Fort Azatlan, at Merom on the Wabash River, is the most noticeable in Indiana.[8] In Illinois, the great Cahokia truncated pyramid, 700 feet long by 500 wide and 90 high, is the most important.[9]

Henry Gillman, of Detroit, has been the leading writer on the mounds of Michigan.[10] The supposed connection of their builders with the ancient copper mines of Lake Superior is considered in another place. Thomas (*Fifth Rept., Bur. Ethnol.*) contends that much of the copper found in the mounds was of European make, and had no relation to any aboriginal mining.

Wisconsin is the central region of what are known as the animal, effigy, symbolic, or emblematic mounds. Mention has been made elsewhere of the earliest notices of this kind of earthwork. The most extensive examination of them is the *Antiquities of Wisconsin as surveyed and described by I. A. Lapham* (Washington, 1855), with a map showing the sites.[11] The consideration of these effigy mounds has given rise to various theories regarding their significance, whether as symbols or to totems.[12] It is Thomas's conclusion that

[1] The annexed map of the vicinity of Chillicothe will show their abundance in a confined area. E. B. Andrews on those in the S. E. in *Peabody Mus. Rept.*, x. MacLean's *Moundbuilders* (Cincinnati, 1879) is of no original value except for Butler County. Squier and Davis give a plan of the fortified hill in this county. Walker's *Athens County*. Isaac J. Finley and Rufus Putnam's *Pioneer Record of Ross County* (Cincinnati, 1871). A plan of the High Bank works in this county is given in the *Amer. Antiquarian*, v. 56. The Highland County works, called Fort Hill, are described in the *Ohio Arch. & Hist. Q.*, 1887, p. 260. G. S. B. Hampstead's *Antiq. of Portsmouth* (1875) embodies results of a long series of surveys. Cf. *Journal Anthropological Institute*, vii. 132.

[2] D. Drake's *Picture of Cincinnati* (1815); Harrison in *Ohio Hist. & Philos. Soc.*, i.; Squier and Davis; Ford's *Cincinnati*, i. ch. 2.

[3] The best known of the ancient fortifications of this region is that called Fort Ancient, about 42 miles from Cincinnati. It was surveyed by Prof. Locke in 1843. Cf. L. M. Hosea in *Quart. Journal of Science* (Cinn., Oct., 1874); Putnam in the *Amer. Architect*, xiii. 19; *Amer. Antiquarian*, April, 1878; Force's *Moundbuilders;* Warden's *Recherches;* Squier and Davis, with plan reduced in MacLean, p. 21; Short, 51; and on its present condition, *Peab. Mus. Rept.*, xvi. 168. There is an excellent map of the mounds in the Little Miami Valley, in Dr. C. L. Metz's *Prehistoric Monuments of the Little Miami Valley*, in the *Journal of the Cincinnati Soc. of Nat. Hist.*, vol. i., Oct., 1878. The explorations of Putnam and Metz are recorded in the *Peab. Mus. Repts.*, xvii., xviii. (Marriott mound), and xx. Cf. Putnam's lecture in *Mag. West. History*, Jan., 1888. There are explorations at Madisonville noticed in the *Journal of the Cinn. Soc. Nat. Hist.*, Apr., 1880. Others in this region are recorded in L. B. Welch and J. M. Richardson's *Prehistoric relics found near Wilmington* (Sparks mound), and by F. W. Langdon in the appendix of Short.

[4] M. C. Read's *Archæol. of Ohio* (Cleveland, 1888), with cut. Col. Whittlesey made the survey in Squier and Davis, and it is copied by Foster. O. C. Marsh in *Hist. Mag.* xii. 240; and in *Amer. Journal of Science*, xcii. (July, 1866). Isaac Smucker, a local antiquary, in *Newark American*, Dec. 19, 1872; in *Amer. Hist. Record*, ii. 481; and in *Amer. Antiq.*, iii. 261 (July, 1881). Cf. Nadaillac, 99, and view in Lossing's *War of 1812*, p. 565.

Other antiquities of the central region are described in no. 11 *Western Res. Hist. Soc. Tracts* (Hardin Co.); in *Ohio Arch. Hist. Quart.*, March, 1888 (Franklin Co.); *Amer. Antiq. Soc. Proc.*, April, 1863 (Fairfield Co., etc.).

[5] R. W. McFarland in *Ohio Arch. Hist. Quart.*, i. 265 (Oxford).

[6] Cox in *Am. Assoc. Adv. Sci.*, 1874 (fort in Clarke Co.).

[7] *West. Res. Hist. Soc. Tracts*, no. 41 (1877); and for the Cuyahoga Valley in no. 5 (1871), both by Whittlesey. The works on the Huron River, east of Sandusky, were described, with a plan, by Abraham G. Steiner in *Columbian Mag.*, Sept., 1789, reprinted in *Fireland's Pioneer*, xi. 71. G. W. Hill in *Smithsonian Rept.*, 1874; E. O. Dunning on the Lick Creek mound in *Peab. Mus. Rept.*, v. p. 11; S. D. Peet on a double-walled enclosure in Ashtabula Co. in *Smithsonian Rept.*, 1876. Cf. Cornelius Baldwin on ancient burial cists in northeastern Ohio in *West. Res. Hist. Tracts*, no. 56, and Yarrow on mound-burials in *First Rept. Bur. Ethnol.*

[8] Cf. Putnam in *Bull. Essex Inst.*, iii. (Nov., 1871), and *Boston Soc. Nat. Hist. Proc.* (Feb., 1872); Foster, p. 134, with plan. The *Smithsonian Repts.* cover notices by W. Pidgeon (1867), by A. Patton in Knox and Lawrence counties (1873), and by R. S. Robertson (1874).

[9] *Peabody Mus. Reports*, xii. 473 (1879). For Illinois mounds see Thomas in *Fifth Rept. Bur. Ethnol.;* Davidson and Struve's *Illinois;* E. Baldwin's *La Salle Co.* (Chicago, 1877); W. McAdams's *Antiq. of Cahokia* (Edwardsville, 1883); H. R. Howland in the *Buffalo Soc. Nat. Hist. Bull.*, iii.; and in *Smithsonian Repts.*, by Chas. Rau (1868); largely on agricultural traces; by Dr. A. Patton (1873); by T. M. Perrine on Union Co. (1873); by T. McWhorter and others (1874); by W. H. Pratt on Whiteside Co. (1874); by J. Shaw on Rock River (1877); and by J. Cochrane on Mason Co. (1877).

[10] His papers are in the *Smithsonian Repts.*, 1873, 1875; *Peabody Mus. Reports*, vi. (1873), on the St. Clair River mounds; *Am. Journal of Arts, etc.*, Jan., 1874; *Am. Assoc. Adv. Sci. Proc.*, 1875; on bone relics in *Congrès des Amér.*, 1877, i. 65; and on the Lake Huron mounds, in *American Naturalist*, Jan., 1883. Cf. other accounts in *Michigan Pioneer Collections*, ii. 40; iii. 41, 202; S. D. Peet in *Amer. Antiq.*, Jan., 1888; and on the old fort near Detroit, *Ibid.* p. 37; and Bela Hubbard's *Memorials of a half century.*

[11] The copy in Harvard College library has some annotations by George Gale. Lapham's survey of Aztlan is reproduced in Foster, p. 102. Lapham's book is summarized by Wm. Barry in the *Wisconsin Hist. Soc. Coll.*, iii. 187. These *Collections* contain other papers on mounds in Crawford Co. by Alfred Brunson (iii. 178); on man-shape mounds (iv. 365); J. D. Butler on 'Prehistoric Wisconsin" (vii.); on Aztalan (ix. 103).

The *Transactions* of the Wisconsin Acad. of Science are also of assistance: vol. iii., a report of a committee on the mounds near Madison, with cuts; vol. iv., a paper by J. M. DeHart on the "Antiquities and platycnemism [flat tibia bones] of the Moundbuilders."

[12] S. D. Peet has discussed this aspect in the *Amer. Antiquarian* (1880), iii. p. 1; vi. 176; vii. 164, 215, 321.

the effigy mounds and the burial mounds of Wisconsin were the work of the same people (*Fifth Rept., Bur. Ethnol.*).

The existence of what is called an elephant or mastodon mound in Grant County has been sometimes taken to point to the age of those extinct animals as that of the erection of the mounds.[1] Putnam, referring to the confined area in which these effigy mounds are found, says that the serpent mound, the alligator mound,[2] and Whittlesey's effigy mound in Ohio, and two bird mounds in Georgia,[3] are the only other works in North America to which they are at all comparable.[4]

When Lewis and Clark explored the Missouri River in 1804–6, they discovered mounds in different parts of its valley; but their statements were not altogether confirmed till the parties of the United States surveyors traversed the region after the civil war, as is particularly shown in Hayden's *Geological Survey, 6th Rept.*, in 1872. Within the present State of Missouri the mounds which have attracted most notice are those near the modern St. Louis.[5] In Iowa (Clayton County) there is said to be the largest group of effigy mounds west of the Mississippi.[6] The mounds of Iowa and the neighboring region are also discussed by Thomas in the *Fifth Rept. Bur. Ethnol.* O. H. Kelley has reported on the remains of an ancient town in Minnesota.[7] In Kansas there is little noticeable,[8] and there is not much to record in Dacotah,[9] Utah,[10] California,[11] and Montana.[12] We find scant accounts of the mounds in Oregon and Washington in the narrative of the Wilkes Exploring Expedition and in the earlier story of Lewis and Clark. Some of the mounds are of doubtful artificiality.[13]

Along the lower portion of the Mississippi, but not within three hundred miles of its mouth, we find in Louisiana other mound constructions, but not of unusual significance.[14]

The first effigy mound, a bear, which was observed south of the Ohio, is near an old earthwork in Greenup County, Kentucky.[15] The mounds of this State early attracted notice.[16] Bishop Madison[17] thought them sepulchral rather than military. In the *Western Review* (Dec., 1819) one was described near Lexington. Rafinesque added a not very sane account of them to Marshall's *History of Kentucky*, in 1824, which was also published separately, and since then all the general histories of Kentucky have given some attention to these antiquities.[18]

viii. 1; ix. 67. He also examines the evidence of the village life of their builders (ix. 10). Cf. his *Emblematic Mounds;* and his paper in the *Wisconsin Hist. Coll.*, ix. 40.

[1] None of the bones of extinct animals have been found in the mounds; nor has the buffalo, long a ranger of the Mississippi Valley, been identified in the shapes of the mounds. (Cf. Peet on the identification of animal mounds in *Amer. Antiq.*, vi. 176.) Peet holds they followed the mastodon period (*Ibid.* ix. 67). The elephant mound, so called, has been often shown in cuts. (Cf. *Smithsonian Rept.*, 1877, accompanying a paper by J. Warner, and Powell's *Second Rept. Bur. of Eth.*, 153.) Henshaw here discredits the idea of its being intended for an elephant. The evidence of elephant pipes is thought uncertain. Cf. article on mound pipes by Barber in *Amer. Naturalist*, April, 1882.

[2] *Second Rept. Bur. of Ethnol.*, p. 159, where Henshaw thinks it may just as well be anything else. Cf. Isaac Smucker in *Amer. Antiquarian*, vii. 350.

[3] Cf. *Amer. Antiq.*, vi. 254.

[4] *Peab. Mus. Rept.*, xvii., and *Amer. Antiq. Soc. Proc.*, Oct., 1883. He points out that the Ohio effigy mounds have a foundation of stones with clay superposed; the Georgia mounds are mainly of stone; while the Wisconsin mounds seem to be constructed only of earth.

Further references on the Wisconsin mounds: *Smithsonian Repts.*, by E. E. Breed (1872); by C. K. Dean (1872); by Moses Strong (1876, 1877); by J. M. DeHart (1877); and again (1879).

Also: Haven's *Archæol. U. S.*, p. 106; W. H. Canfield's *Sauk County;* DeHart in *Amer. Antiquarian*, April, 1879; their military character in *Ibid.*, Jan., 1881; also as emblems in *Ibid.* 1883 (vi. 7); Nadaillac and other general works. There is a map of those near Beloit — some are in the college campus — in the *American Antiquarian*, iii. 95.

[5] They have been described in the *Smithsonian Reports* by T. R. Peale (1861); and in *Amer. Antiquarian*, July, 1888, by S. D. Peet. Other mounds and relics are described in the *Smithsonian Repts.* (1863) by J. W. Foster; (1870) by A. Barrandt; (1877) by W. H. R. Lykins; and (1879) by G. C. Broadhead; in *Peab. Mus. Repts.*, viii., by Professor Swallow; in *Missouri Hist. Soc. Publ.*, no. 6, by F. F. Hilder; in *Cinn. Quart. Jour. of Sci.*, Jan., 1875, by Dr. S. H. Headlee; in the *Kansas City Rev.*, i. 25, 531; in the *St. Louis Acad. of Science* (1880) by W. P. Potter; Mr. A. J. Conant has been the most prolific writer in *Ibid.*, April 5, 1876; in W. F. Switzler's *History of Missouri* (St. Louis, 1879), and in C. R. Burns's *Commonwealth of Missouri* (1877). Cf. also Poole's *Index*, p. 858.

[6] T. H. Lewis in *Science*, v. 131; vi. 453. On other Iowa mounds, see *Smithsonian Rept.*, by J. B. Cutts (1872); by M. W. Moulton (1877), and again (1879); *Annals of Iowa*, vi. 121; and W. J. McGee in *Amer. Journal Science*, cxvi. 272.

[7] *Smithsonian Rept.*, 1863; and for mounds, 1879. Cf. L. C. Estes on the antiquities on the banks of Missouri and Lake Pepin in *Ibid.* 1866.

[8] *Kansas Rev.*, ii. 617; Joseph Savage and B. F. Mudge in *Kansas Acad. Science*, vii.

[9] *Smithsonian Rept.*, by A. J. Comfort (1871) and by A. Barrandt (1872); W. McAdams in *Amer. Antiquarian*, viii. 153.

[10] *Amer. Naturalist*, x. 410, by E. Palmer; Bancroft, *Nat. Races*, iv. 715.

[11] App. to Gleeson's *Hist. of the Catholic Church in California* (1872), ii., and Bancroft's *Nat. Races*, iv. 695.

[12] P. W. Norris in *Smithsonian Report*, 1879.

[13] Cf. George Gibbs in *Journal Amer. Geogr. Soc.*, iv.; A. W. Chase in *Amer. Jour. Sci.*, cvi. 26; *Amer. Architect*, xxi. 295; and Bancroft, *Nat. Races*, iv. 735.

[14] Cf. S. H. Locket in *Smithsonian Rept.* (1872), and T. P. Hotchkiss in the same, and a paper in 1876; *Amer. Journal Science*, xlix. 38, by C. G. Forshey, and lxv. 186, by A. Bigelow.

[15] T. H. Lewis, with plan, in *Amer. Journal Archæol.*, iii. 375; previously noted by Atwater and by Squier and Davis.

[16] Cf. Filson's *Kentucke.*

[17] *Amer. Philos. Soc. Trans.*, iv., no. 26.

[18] Thomas E. Pickett contributed this part (1871) to Collins's *Hist. Kentucky* (1878), i. 380; ii. 68, 69, 227, 302, 303, 457, 633, 765. Pickett's contribution was published separately as *The testimony of the Mounds* (Marysville,

In Tennessee we find in connection with the earthworks the stone graves, which the explorations of Putnam, about ten years ago, brought into prominence.[1] The chief student of the aboriginal mounds in Georgia has been Col. C. C. Jones, Jr., who has been writing on the subject for nearly forty years.[2] The mounds in the State of Mississippi, as including the region of the Natchez Indians, derive some added interest because of the connection sometimes supposed to exist between them and the race of the mounds.[3] The same characteristics of the mounds extend into Alabama.[4] The mounds in Florida attracted the early notice of John and William Bartram, and are described by them in their *Travels*, and have been dwelt upon by later writers.[5] The seaboard above Georgia has not much of interest.[6] Concerning the mounds along the Canadian belt there is hardly more to be said.[7]

Lubbock classes the signs of successive periods in North America thus: original barbarism, mounds, garden beds, and then the relapse into barbarism of the red Indian. The agricultural age thus follows that of the mound erection, in his view, though, as Putnam says, there seems enough evidence that the constructors of the old earthworks were an agricultural race.[8]

There is another class of relics which, outside the hieroglyphics of Central America, has as yet had little comprehensive study, though the general books on American archæology enumerate some of the inscriptions on rocks, which are so widely scattered throughout the continent.[9]

Ky., 1875). Prof. Shaler, as head of the Geological Survey of Kentucky, included in its Reports Lucien Carr's treatise on the mounds, already mentioned; and touches the subject briefly in his *Kentucky*, p. 45. Cf. also Maj. Jona. Heart in Imlay's *Western Territory;* S. S. Lyon in *Smithsonian Repts.*, 1858, 1870, and R. Peter, in 1871, 1872; F. W. Putnam in *Boston Soc. Nat. Hist. Proc.*, xvii. 313 (1875); and *Nature*, xiii. 109.

[1] The aboriginal remains of Tennessee have successively been treated in John Haywood's *History of Tennessee* (Nashville, 1823); by Gerard Troost in *Amer. Ethnol. Soc. Trans.* (1845), i. 335; by Joseph Jones in *Smithsonian Contributions*, xx. (1876), who connected those who erected the works, through the Natchez Indians, with the Nahuas. Edward O. Dunning had described some of the Tennessee relics in the *Peabody Mus. Repts.*, iii., iv., and v.; but Putnam in no. xi. (1878) gave the results of his opening of the stone graves, with his explorations of the sites of the villages of the people, and described their implements, nothing of which, as he said, showed contact with Europeans. Cyrus Thomas deems these remains the works of the Indian race (*Amer. Antiq.*, vii. 129; viii. 162). The *Smithsonian Repts.* have had various papers on the Tennessee antiquities: I. Dille (1862); A. F. Danilsen (1863); M. C. Read (1867); E. A. Dayton, E. O. Dunning, E. M. Grant, and J. P. Stelle (1870); Rev. Joshua Hall, A. E. Law, and D. F. Wright (1874); and others (in 1877).

L. J. Du Pré, in *Harper's Monthly* (Feb., 1875), p. 347, reports upon a ten-acre adobe threshing-floor, preserved two feet and a half beneath black loam, near Memphis.

[2] Col. Jones's papers are: *Indian Remains in South Georgia, an address* (Savannah, 1859); *Ancient tumuli on the Savannah River; Monumental Remains of Georgia*, part i. (Savannah, 1861); *Amer. Antiq. Soc. Proc.*, April, 1869; *Antiquities of Southern Indians* (1873); on effigy mounds in *Smithsonian Rept.* (1877); and on bird-shaped mounds in *Journal Anthropological Soc.*, viii. 92. Cf. also the early chapters of his *Hist. of Georgia*.

Other writers: H. C. Williams and Geo. Stephenson in *Smithson. Rept.* (1870); and Wm. McKinley and M. F. Stephenson (1872). Cf. *Amer. Ethnol. Soc. Trans.*, iii., on Creeks and Cherokees; and on the great mound in the Etowah Valley, *Amer. Asso. Adv. Sci.* (1871). Thomas (*Fifth Rept. Bur. Ethnol.*) supposes the Etowah mound to be the one with a roadway described by Garcilasso de la Vega as being on De Soto's route. Thomas describes other mounds of this group, giving cuts of the incised copper plates found in them, which he holds to be of European make. This forces him to the conclusion that the larger mound was built before De Soto's incursion and the others later; and as they differ from those in Carolina, he determines they were not built by the Cherokees.

[3] Cf. S. A. Agnew in *Smithsonian Reports* (1867), and J. W. C. Smith (1874, cf. 1879); Jas. R. Page in *St. Louis Acad. Science Trans.*, iii., and *Cinn. Q. Journal of Sci.*, Oct., 1875; Haven, p. 51; and Edw. Fontaine's *How the World was peopled*, 153.

[4] E. Cornelius in *Amer. Journ. Sci.*, i. 223; Pickett's *Alabama*, ch. 3.

[5] Schoolcraft, *Indian Tribes*, iii., and in *N. Y. Hist. Soc. Proc.*, 1846, p. 124. Brinton's *Floridian Peninsula*, ch. 6. *Amer. Antiquarian*, iv. 100; ix. 219. *Smithsonian Reports* (1874), by A. Mitchell, and 1879.

[6] J. M. Spainhour on antiquities in North Carolina, in *Smithson. Rept.*, 1871; T. R. Peale on some near Washington, D. C. (*Ibid.*, 1872); Schoolcraft, on some in Va., in *Amer. Ethnol. Soc. Trans.*, i.; with Squier and Davis, and *Peabody Mus. Rept.*, x., by Lucien Carr. There is a plan of a fort in Virginia in the *Amer. Pioneer*, Sept., 1842, and a paper on the graves in S. W. Virginia in *Mag. Amer. Hist.*, Feb., 1885, p. 184.

[7] W. E. Guest on those near Prescott, in *Smithsonian Rept.*, 1856. T. C. Wallbridge describes some at the bay of Quinté in *Canadian Journal* (1860), v. 409, and Daniel Wilson for Canada West in *Ibid.*, Nov., 1856. T. H. Lewis on the remains in the valley of the Red River of the North, in *Amer. Antiquarian*, viii. 369; and for those in Manitoba papers by A. McCharles in the *Amer. Journal of Archæology*, iii. 72 (June, 1887), and by George Bryce in *Manitoba Hist. and Sci. Soc. Trans., No. 18* (1884–85). Bancroft's *Nat. Races*, iv. 738, etc., for British Columbia.

[8] Cf. for garden beds *Amer. Antiquarian*, i. and vii.; Foster, 155; Bela Hubbard's *Memorials of a half century* (Detroit). Shaler (*Kentucky*, 46) surmises that it was the buffalo coming into the Ohio Valley, and affording food without labor, that debased the moundbuilders to hunters.

[9] Cf. Col. Whittlesey on rock inscriptions in the United States in *West. Res. Hist. Soc. Tract No. 42.* Col. Garrick Mallory's special studies of pictographs are contained in the *Bull. U. S. Geological Survey of the territories* (1877), and in the *Fourth Rept. Bur. Ethnol.* Wm. McAdams includes those of the Mississippi Valley in his *Records of ancient races in the Mississippi Valley* (St. Louis, 1887). Cf. *Hist. Mag.*, x. 307. Those in Ohio are enumerated in the *Final Rept. of the State Board of Centennial Managers* (1877), by M. C. Read and Col. Whittlesey. Cf. also the *West. Res. Hist. Soc. Tracts Nos. 12, 42, 53;* the *Amer. Asso. Adv. Sci. Proc.* (1875); and *The Antiquary*, ii. 15. Those in the Upper Minnesota Valley are reported on by T. H. Lewis in the *Amer. Naturalist*, May, 1886, and July, 1887. J. R. Bartlett in his *Personal Narrative* noted some of those along the Mexican boundary, and Froebel (*Seven Years' Travel*, Lond., 1859, p. 519) controverts some of Bartlett's views. Cf. Nadaillac, *Les premiers hommes*, ii.; J. G. Bruff on those in the Sierra Nevada in *Smithson. Rept.*, 1872. A. H. Keane

Out of all this discussion has risen the new science of Anthropology, broad enough in its scope to include not only archæology in its general acceptation, but to sweep into its range of observation various aspects of ethnology and of geology. It is a new science as at present formulated; but under other conditions it is traced from its origin with the ancients in a paper by T. Bendyshe in the *Memoirs of the Anthropological Society of London* (vol. i. 335). Its progress in America is treated by O. T. Mason in the *American Naturalist* (xiv. 348; xv. 616). The most approved methods of modern research are explained in Emil Schmidt's *Anthropologische Methoden; Anleitung zum beobachten und sammeln für Laboratorium und Reise* (Leipzig, 1888). "The methods of archæological investigation are as trustworthy as those of any natural science," says Lubbock (*Scientific Lectures*, 139). Beside the publications of the various Archæological, Anthropological, and Ethnological Societies and Congresses [1] of both hemispheres, we find for Europe a considerable centre of information in the *Materiaux pour l'histoire primitive et naturelle* (*philosophique*) *de l'homme*,[2] and for America in the publications of the Smithsonian Institution,[3] in the *Comptes rendus* of the successive Congresses of Américanistes, and in such periodicals as the *American Antiquarian*, the *American Anthropologist*, and the *Folk Lore Journal*.

MAJOR POWELL.

reports upon some in North Carolina in the *Journal Anthropological Inst.* (London), xii. 281. C. C. Jones in his *Southern Indians* (1873) covers the subject. Some in Brazil are noted in *Ibid.*, Apr., 1873.

[1] The first session of the International Congress of Prehistoric [Anthropology and] Archæology was held at Neuchâtel, and its proceedings were printed in the *Materiaux pour l'histoire de l'homme*. The second session was at Paris; the third at Norwich, England; the fourth at Copenhagen; and there have been others of later years. Cf. A. de Quatrefages' *Rapport sur le progrès de l'anthropologie* (Paris, 1868). Quatrefages himself is one of the most distinguished of the French school, and deserves as much as any to rank as the founder of the present French school of anthropologists. Cf. his *Hommes fossiles et hommes sauvages* (1884). The English reader can most easily get possessed of his view, conservative in some respects, in Eliza A. Youman's English version of his most popular book, *Nat. Hist. of Man* (N. Y., 1875).

[2] Founded in Paris in 1864 by Gabriel de Mortillet, and edited after vol. v. by Eugène Trutat and Emile Cartailhac.

[3] Cf. C. Rau's *Articles on anthropol. subjects contributed to the Annual Repts. of the Smithson. Inst., 1863-1877* (Smiths. Inst., no. 440; Washington, 1882). The *Smithson. Rept.*, 1880 (Washington, 1881), also contains a bibliography of anthropology by O. T. Mason. A considerable list of books is prefixed to Dr. Gustav Brühl's *Culturvölker des alten Amerika*, which is a collection of tracts published at different times (1875–1887) at N. Y., Cincinnati, and St Louis.

The broad subject of prehistoric archæology is covered in a paper by Lubbock, which is included in his *Scientific Lectures* (Lond., 1879);[1] in H. M. Westropp's *Prehistoric Phases, or Introductory Essays on Prehistoric Archæology* (Lond., 1872); in Stevens's *Flint Chips* (1870); by Dr. Brinton in the *Iconographic Encyclopædia*, vol. ii.; and more popularly in Charles F. Keary's *Dawn of History, an introd. to prehistoric study* (N. Y., 1879), and in Davenport Adams's *Beneath the Surface, or the Underground World.*

The French have contributed a corresponding literature in Louis Figuier's *L'Homme primitif* (Paris, 1870);[2] in Zaborowski's *L'homme préhistorique* (Paris, 1878); and in the Marquis de Nadaillac's *Les premiers hommes et les temps préhistoriques* (Paris, 1881), and his *Mœurs et monuments des peuples préhistoriques* (Paris, 1888), not to mention others.[3]

The principal comprehensive works covering the prehistoric period in North America, are J. T. Short's *North Americans of Antiquity* (N. Y., 1879, and later); the *L'Amérique préhistorique* of Nadaillac (Paris, 1883);[4] Foster's *Prehistoric Races of the United States* (Chicago, 1873; 6th ed., 1887); and the compact popular *Ancient America* (N. Y., 1871) of John D. Baldwin. Beside Bancroft's *Native Races*, there are various treatises of confined nominal scope, but covering in some degree the whole North American field, which are noted in other pages.[5]

The purely ethnological aspects of the American side of the subject are summarily surveyed in A. H. Keane's "Ethnology of America," appended to Stanford's *Compendium of Geography, Cent. America*, etc. (London, 2d ed., 1882), and there are papers on Ethnographical Collections in the *Smithsonian Report* (1862).[6] The great repository of material, however, is in the *Contributions to North American Ethnology*, being a section of Major Powell's *Survey of the Rocky Mountain Region*, and in the *Annual Reports* of the Bureau of Ethnology since 1879, made under Major Powell's directions, and in the *Reports of the Peabody Museum*.[7]

[1] He had surveyed the condition of the science in 1867 in his introduction to Nilsson's *Stone Age, — Primitive inhabitants of Scandinavia.* Cf. also *Smithsonian Report*, 1862.

[2] Figuier's books are nearly all accessible in English. His *Human Race* and his *World before the Deluge* cover some parts of the subject.

[3] A few minor references: Dawson's *Story of Earth and Man*, ch. 14, 15. Foster's *Prehistoric Races of the U. S.*, ch. 1, 2. Clodd's *Childhood of the World.* Gay's *Pop. Hist. U. S.*, ch. 1. Principal Forbes in the *Edinburgh Review*, July, 1863; Oct., 1870. *London Quarterly Rev.*, Apr., 1870. *Contemp. Rev.*, xi. *Bibliotheca Sacra*, Apr., 1873. *Brit. Q. Rev.*, Ap., Oct., 1863. *Lond. Rev.*, Jan., 1860. *Lippincott's Mag.*, vol. i. *Nat. Q. Rev.*, Mar., 1876. *Lakeside Monthly*, vol. x., etc.

[4] Translated by N. D'Anvers and edited by W. H. Dall, with some radical changes of text (N. Y., 1884). Cf. Lucien Carr in *Science*, 1885, Feb. 27, p. 176. Dall discusses the evidences of the remains of the later prehistoric man in the United States in the *Smithsonian Contributions*, vol. xxii.

[5] A few other references of lesser essays: D. G. Brinton's *Review of the data for the study of the prehistoric chronology of America* (Salem, 1887, — from the *Proc. Amer. Ass. Adv. Sci.*, xxxvi.); his *Recent European Contributions to the study of Amer. Archæology* (Philad. 1883); and his *Prehistoric Archæology* (Philad., 1886). Seth Sweetzer on prehistoric man in the *Am. Antiq. Soc. Proc.*, Apr., 1869, and Haven's *Prehistoric Amer. Civilization* in *Ibid.*, April, 1871. J. L. Onderdonck in *Nat. Quart. Rev.* (April, 1878), xxxvi. 227. Ernest Marceau's "Les anciens peuples de l'Amérique" in the *Revue Canadienne*, n. s., iv. 709. E. S. Morse in *No. Amer. Rev.*, cxxxii. 602, or *Kansas Rev.*, v. 90. H. Gillman's *Ancient men of the Great Lakes* (Detroit, 1877).

The principal work on the South American man is Alcède d'Orbigny's *L'Homme Américaine* (Paris, 1837). There are some local treatises, like Lucien de Rosny's *Les Antilles: étude d'ethnographie et d'archéologie Americaines* (Paris, 1886, — *Am. Soc. d'Ethnographie*, n s., ii.), and papers by Nadaillac and others in the *Materiaux*, etc.

[6] By Theo. Lyman and Hr. de Schlagintweit.

[7] The long article on the Races of America in Cassino's *Standard Nat. Hist.* (Boston, 1885), vol. vi., is based on Friedrich von Hellwald's *Naturgeschichte des Menschen*, but it is widely varied in places under the supervision of Putnam and Carr. Cf. also J. C. Prichard's *Researches into the physical history of mankind* (Lond., 1841), 4th ed., vol. v., "Oceanic and American nations."

APPENDIX.

I.

BIBLIOGRAPHY OF ABORIGINAL AMERICA.

By the Editor.

THE student will find a general survey of "Les Sources de l'histoire anté-Colombienne du nouveau monde, par Léon de Rosny," in the *Revue Orientale et Américaine* (*Mém. de la soc. d'ethnographie*) *session de 1877* (p. 139). Bancroft in his *Native Races* (v. 136) makes a similar grouping of the classes of sources relating to the primitive Americans.[1] These classes are defined in Daniel G. Brinton's *Review of the data for the study of the prehistoric chronology of America* (Salem, 1887), from the *Proceedings of the Amer. Asso. for the Advancement of Science* (vol. xxxvi.), as conveniently divided into groups pertaining to legendary, monumental, industrial, linguistic, physical, and geological phenomena.

There have been given in the Introduction of the present volume the titles of general bibliographies of American histories, most of which include more or less of the titles pertaining to aboriginal times. It is the purpose of the present brief essay to enumerate, in an approximately chronological order, the titles of some of those and of others which are useful to the archæologist. So far as they are of service to the student of the American languages, an extended list will be found prefixed to Pilling's *Proof-Sheets* (p. xi).

The earliest American bibliography was that of Antonio de Leon, usually called Pinelo, — *Epitome de la Biblioteca oriental y occidental náutica y Geográfica* (Madrid, 1629), — but which is usually found in the edition of Gonzales de Barcía, "Añadido y enmendado nuevamente" (Paris, 1737–1738), in which the American titles, including numerous manuscripts, are given in the second volume.[2]

The *Bibliotheca Hispana Nova* of Nicolás Antonio was first published at Rome in 1672, but in a second edition at Madrid in 1783–88.[3]

Passing by the *Bibliotheca Mexicana* of Eguiara y Eguren,[4] and the early edition of Beristain, we note the new edition of the latter, prepared not by Juan Evangelista Guadalajara, as Brasseur notes,[5] but by another, as the title shows, — *Biblioteca Hispano-Americana Septentrional, ó catalogo y noticia de los Literatos que ó nacidos, ó educados, ó florecientes en la America Septentrional Española, han dado á luz algun escrito ó lo han dexado preparado para la prensa por José Mariano Beristain y Martin de Souza. Segunda edicion, por Fortino Hipólito Vera* (Amecameca, 1883).

Dr. Robertson intimates that the lists of books which writers of the seventeenth century had been in the habit of prefixing to their books as evidence of their industry had come to be regarded as an ostentatious expression of their learning, and with some hesitancy he counted out to the reader his 717 titles; but Clavigero, as elsewhere pointed out,[6] was richer in such resources. Humboldt, in his *Vues*,[7] gives a list of the authors which he cites.

The class of dealers' catalogues — we cite only such as have decided bibliographical value — begins to be conspicuous in Paul Trömel's *Bibliothèque Américaine* (Leipzig, 1861), the best of the German ones, and in Charles Leclerc's *Bibliotheca Americana* (Paris, 1867), much improved in his *Bibliotheca Americana. Histoire, géographie, voyages, archéologie et linguistique des deux Amériques et des îles Philippines* (Paris, 1878), with later supplements, constituting the best of the French catalogues, provided with an excellent index and a linguistic table, rendered necessary by the classified plan of the list.

[1] Bandelier, in his several essays in the 2d volume of the *Peabody Museum Reports*, speaks of his neglecting such compilations as Bancroft's in order to deal solely with the original sources, and the student will find the references in his foot-notes of those essays very full indications of what he must follow in the study of such sources.

[2] Harrisse, *Bib. Am. Vet.*; Rich, *Bibl. Nova*; Leclerc, nos. 350, 351; Pilling, p. xxviii.

[3] Pilling, p. xii.

[4] See Vol. II. p. 429.

[5] *Bib. Mex. Guat.*, p. 24; Pinart, no. 161. Cf. Icazbalceta on "Las bibliotecas de Eguiara y de Beristain" in *Memorias de la Académia Méxicana*, i. 353.

[6] Vol. II. p. 430.

[7] Also in Eng. transl., ii. 256.

The list formed by students in this field begins with the *Bibliotheca Americana Vetustissima* of Harrisse (New York, 1866; additions, Paris, 1872), and includes the *Bibliothèque Mexico-Guatémalienne, précédée d'un coup d'œil sur les études américaines dans leurs rapports avec les études classiques, et suivie du tableau, par ordre alphabétique, des ouvrages de linguistique Américaine contenus dans le même volume* (Paris, 1871) of the Abbé Brasseur de Bourbourg, who at that time had been twenty-five years engaged in the studies and travels which led to the gathering of his collection. The library, almost entire, was later joined to that of Alphonse L. Pinart, and was included in the latter's *Catalogue de livres rares et précieux, manuscrits et imprimés* (Paris, 1883).

In 1866, Icazbalceta published at Mexico his *Apuntes para un Catálogo de Escritores en lenguas indígenas de América*,[1] but of his great bibliographical work only one volume has as yet appeared: *Bibliografía Américana del Siglo xvi. Primera parte. Catálogo razonado de libros impresos en México de 1539 à 1600, con biografías de autores y otras ilustraciones, precedido de una noticia acerca de la introducción de la imprenta en México* (México, 1886).

Bandelier has embodied some of the results of his study in his "Notes on the Bibliography of Yucatan and Central America," in the *Amer. Antiq. Soc. Proc.*, n. s., i. pp. 82–118.

The catalogues of collections having special reference to aboriginal America are the following: —

Catalogue de la Bibliothèque de José Maria Andrade, 7,000 pièces et volumes, ayant rapport au Méxique ou imprimés dans ce pays (Leipzig, 1869).[2]

Bibliotheca Mejicana: Books and manuscripts almost wholly relating to the history and literature of North and South America, particularly Mexico (London, 1869). This collection was formed by Augustin Fischer, chaplain to the Emperor Maximilian; but there were added to the catalogue some titles from the collection of Dr. C. H. Berendt.

Catalogue of the library of E. G. Squier, edited by Joseph Sabin (N. Y., 1876).

Bibliotheca Mexicana, or A Catalogue of the library of the rare books and important MSS. relating to Mexico and other parts of Spanish America, formed by the late Señor Don José Fernando Ramirez (London, 1880). This catalogue was edited by the Abbé Fischer.[3]

The most useful guides to the literature of aboriginal America, however, are some compiled in this country. First, the comprehensive though not yet complete bibliography, Joseph Sabin's *Dictionary of books relating to America*, now being continued since Sabin's death, and with much skill, by Wilberforce Eames. Second, the voluminous *Proofsheets of a Bibliography of the languages of the North American Indians* (Washington, 1885), prepared by James Constantine Pilling, tentatively, in a large quarto volume, distributed only to collaborators; and out of which, with emendations and additions, he is now publishing special sections of it, of which have already appeared those relating to the Eskimo and Siouan tongues. His enumeration so much exceeds the range of purely linguistic monographs that the treatises become in effect general bibliographies of aboriginal America.

Third, *An Essay towards an Indian bibliography, being a Catalogue of books relating to the history, antiquities, languages, customs, religion, wars, literature and origin of the American Indians, in the library of Thos. W. Field, with bibliographical and historical notes and synopses of the contents of some of the works least known* (N. Y., 1873). The sale of Mr. Field's library took place in New York, May, 1875, from a *Catalogue* not so elaborate, but still of use. These books are not so accurately compiled as to be wholly trustworthy as final resorts.

Finally, the list prefixed to Bancroft's *Native Races*, vol. i., and the references of his foot-notes, throughout his five volumes (condensed often in Short's *North Americans of Antiquity*), are on the whole the most serviceable aids to the general student, but unfortunately the index of the set is of no use in searching for bibliographical detail.

The reader will remember that the bibliographies of sectional or partial import in the field of American archæology are referred to elsewhere in the present volume.

[1] Cf. Brinton's *Aborig. Amer. Authors*, Philad., 1883. [2] See Vol. II. p. 430. [3] Pilling, p. xxxi.

II.

THE COMPREHENSIVE TREATISES ON AMERICAN ANTIQUITIES.

By the Editor.

At the time when Bancroft published his *Native Races* (1875), he referred to John D. Baldwin's *Ancient America* (N. Y., 1871) as the only preceding, comprehensive book on America before the Spaniards.[1] It still remains a convenient book of small compass; but its absence of references to sources precludes its usefulness for purposes of study, and it is not altogether abreast of the latest views. To the popular element a moderate share of the indexical character, rendering the book passably serviceable to the average reader, has been added in the somewhat larger *North Americans of Antiquity, their origin, migrations, and type of civilization considered, by John T. Short* (N. Y., 1880, — somewhat improved in later editions), though it will be observed that the Peruvian and other South American antiquities have not come within his plan. The latest of these comprehensive books is the Marquis de Nadaillac's (Jean F. A. du Pouget's) *L'Amérique préhistorique* (Paris, 1883), which in an English version by N. D'Anvers was published with the author's sanction in London in 1882. With revision and some modifications by W. H. Dall, which have not met the author's sanction, it was republished as *Prehistoric America* (N. Y., 1884). It is a work of more theoretical tendency than the student wishes to find at the opening stage of his inquiry.

But as a compend of every department of archæological knowledge up to about fifteen years ago no advance has yet been made upon Bancroft's *Native Races* as indicative of every channel of investigation which the student can pursue. Upon the monuments of the moundbuilders (iv. ch. 13) and the antiquities of Peru (iv. ch. 14) the treatment is condensed and without references, as occupying a field beyond his primary purpose of covering the Pacific slope of North America and the immediately adjacent regions. Mention is made elsewhere of Bancroft's methods of compilation, and it may suffice to say that in the five volumes of his *Native Races* he has drawn and condensed his matter from the writings of about 1200 writers, whose titles he gives in a preliminary list.[2] The method of arranging the departments of the work is perhaps too far geographical to be always satisfactory to the special student,[3] and he seems to be aware of it (for instance, i. ch. 2); but it may be questioned if, while writing with, or engrafting upon, an encyclopædic system, what might pass for a continuous narrative, any more scientific plan would have been more successful. Bancroft's opinions are not always as satisfactory as his material. The student who uses the *Native Races* for its groups and references will accordingly find a complemental service in Sir Daniel Wilson's *Prehistoric Man* (London, 1876), in which the Toronto professor conducts his "researches into the origin of civilization in the old and the new world," by primarily treating of the early American man, as the readiest way of understanding early man in Europe. His system is to connect man's development topically in the directions induced by his habits, industries, dwellings, art, records, migrations, and physical characterizations.

Another and older book, in some respects embodying like purposes, and though produced at a time when archæological studies were much less advanced than at present, is Alexander W. Bradford's *American Antiquities and researches into the origin and history of the red race* (N. Y., 1841).[4] The first section of the book is strictly a record of results; but in the final portion the author indulges more in speculative inquiry. Even in this he has not transcended the bounds of legitimate hypothesis, though some of his postulates will hardly be accepted nowadays, as when he contends that the red Indians are the degraded descendants of the people who were connected with the so-called civilization of Central America.[5]

[1] A school book, Marcius Willson's *Amer. History* (N. Y., 1847), went much farther than any book of its class, or even of the usual popular histories, in the matter of American antiquities, giving a good many plans and cuts of ruins.

[2] For bibliog. detail regarding the *Nat. Races*, see Pilling's *Proof Sheets*, p. 9. Reviews of the work are noted in *Poole's Index*, p. 956.

[3] Cf., for instance, Dall's strictures on the tribes of the N. W. in *Contrib. to Amer. Ethnol.*, i. p. 8.

[4] Sabin, ii. 7233; Field, no. 169.

[5] Bare mention may be made of a few other books of a general scope: Jean Benoit Scherer's *Recherches historiques et géographiques sur le nouveau monde* (Paris, 1777); D. B. Warden's *Recherches sur les Antiquités de l'Am. Sept.* (Paris, 1827) in *Recueil de Voyages, publié par la Soc. Géog.* (Paris, 1825, ii. 372; cf. Dupaix, ii.); Ira Hill's *Antiquities of Amer. Explained* (Hagerstown, 1831); Louis Faliès' *Etudes historiques et philosophiques sur les civilisations européenne, romaine, grecque, des populations primitives de l'Amérique septentrionale, les Chiapas, Palenqué des Nuhuas ancêtres des Toltèques, civilisation Yucatèque, Zapotèques, Mixtèques, royaume du Michoacan, populations du Nord-Ouest, du Nord et de l'Est, bassin du Mississipi, civilisation Toltèque, Aztèque, Amérique du centre, Péruvienne, domination des Incas, royaume de Quito, Océanie* (Paris, 1872–74); Frederick Larkin's *Ancient man in America. Including works in western New York, and portions of other states, together with structures in Central America* (New York, 1880), — a book, however, hardly to be commended by archæologists; and Charles Francis Keary's *Dawn of History, an introduction to prehistoric study* (N. Y., 1887).

The periodical literature of a comprehensive sort is not so extensive as treatments of special aspects; but the student will find Poole's *Index* and Rhee's *Catalogue and Index of the Smithsonian publications* serviceable.

III.

BIBLIOGRAPHICAL NOTES ON THE INDUSTRIES AND TRADE OF THE AMERICAN ABORIGINES.

By the Editor.

WHILE we have a moderate list of works on the general subject of prehistoric art and industries,[1] we lack any comprehensive survey of the subject as respects the American continent, and must depend on sectional and local treatment. Humboldt in the introduction to his *Atlas* of his *Essai politique* (Paris, 1813) was among the earliest to grasp the material which illustrates the origin and first progress of the arts in America. The arts of the southern regions and western coasts of North America are best followed in those portions of the chapters on the Wild Tribes, devoted to the subject, which make up the first volume of Bancroft's *Native Races*,[2] and for Mexican and Maya productions some chapters (ch. 15, 24) in the second volume. Prescott's treatment of the more advanced peoples of this region is scant (*Mexico*, i., introd., ch. 5). The art in stone of the Pueblo Indians is beautifully illustrated in Putnam's portion of Wheeler's *Report* of his survey, and comparison may be made with Hayden's *Annual Rept.* (1876) of the U. S. Geol. and Geographical Survey. The work of Putnam and his collaborators in the archæological volume (vii.) of Wheeler's *Survey* is probably the most complete account of the implements, ornaments and utensils of any one people (those of Southern California) yet produced; and its illustrations have not been surpassed. Passing north, we shall get some help from E. L. Berthoud's paper on the "Prehistoric human art from Wyoming and Colorado," in his "Journal of a reconnaissance in Creek Valley, Col.," published by the Colorado Acad. of Nat. Sciences (*Proceedings*, 1872, p. 46). In the *Pacific Rail Road Reports* (vol. iii. in 1856) there is a paper by Thomas Ewbank in "Illustrations of Indian antiquities and arts." S. S. Haldeman has described the relics of human industry found in a rock shelter in southeastern Pennsylvania (*Compte Rendu, Cong. des Amér.*, Luxembourg, ii. 319; and *Transactions Amer. Philos. Soc.*, 1878). The best of all the more comprehensive monographs is Charles C. Abbott's *Primitive industry: or illustrations of the handiwork, in stone, bone and clay, of the native races of the Northern Atlantic seaboard of America* (Salem, 1881). Morgan's *League of the Iroquois* touches in some measure of the arts of that confederacy, his earliest study being in the *Fifth Report of the Regents of the State of New York* (1852).

For the Canada regions, the *Annual Reports of the Canadian Institute*, appended to the *Reports* of the Minister of Education, Ontario, contain accounts of the discovery of objects of stone, horn, and shell. (See particularly the sessions of 1886–87.) Dawson in his *Fossil men* (ch. 6) considers what he accounts the lost arts of the primitive races of North America. On the other hand, Professor Leidy found still in use among the present Shoshones split pebbles resembling the rudest stone implements of the palæolithic period (*U. S. Geological Survey*, 1872, p. 652).

Many archæologists have remarked on the uniform character of many prehistoric implements, wherever found, as precluding their being held as ethnical evidences. The system of quarrying[3] for flint best fitted for the tool-maker's art has been observed by Wilson (*Prehistoric man*, i. 68) both in the old and new world, and in his third chapter (vol. i.) we have a treatise on the ancient stone-worker's art.[4]

[1] It is not necessary to enumerate many titles, but reference may be made to the summary of prehistoric conditions in Zerffi's *Historical development of art*. It may be worth while to glance at A. Daux's *Etudes préhistoriques. L'industrie humaine: ses origines, ses premiers essais et ses légendes depuis les premiers temps jusqu'au déluge* (Paris, 1877); Dawson's *Fossil men*, ch. 5; Joly's *Man before Metals*; Nadaillac's *Les Premiers Hommes*, ii. ch. 11; Dabry de Thiersant's *Origine des indiens du Nouveau Monde* (Paris, 1883); and Brühl's *Culturvölker alt-Amerika's*, ch. 14, 16.

[2] Cf., particularly for California, Putnam's *Report* in Wheeler's Survey.

[3] There is some question if the early Americans ever carried on the heavier parts of the quarrying arts, as for building-stones. Cf. Morgan's *Houses and House Life*, 274. They did quarry soap-stone (Elmer R. Reynolds, Schumacher and Putnam, in *Peabody Mus. Repts.*, xii.) and mica (*Smithsonian Report*, 1879, by W. Gesner; C. D. Smith in *Ibid.* 1876; Dr. Brinton in *Proc. Numism. and Antiq. Soc. of Philad.*, 1878, p. 18). That they quarried pipe-stone is also well known, and the famous red pipe-stone quarry, lying between the Missouri and Minnesota rivers, was under the protection of the Great Spirit, so that tribes at war with one another are said to have buried their hatchets as they approached it. Wilson, in the last chapter of the first volume of his *Prehistoric man*, examines this pipe-carving and tells the story of this famous quarry. He refers to the tobacco mortars of the Peruvians in which they ground the dry leaf; and to the pipes of the mounds in which it was smoked. Cf. J. F. Nadaillac's *Les pipes et le tabac* (Paris, 1885), taken from the *Materiaux pour l'histoire primitive de l'homme* (ii. for 1885); and Lucien de Rosny on "Le tabac et ses accessoires parmi les indigènes de l'Amérique," in *Mémoires sur l'Archéologie Américaine*, 1865, of the Soc. d'Ethnographie.

[4] It should be remembered that the recognition of the Flint-folk as occupying a distinct stage of development is

Treating the subject topically, we find the late Charles Rau making some special studies of the implements used in native agriculture[1] in the *Smithsonian Reports* for 1863, 1868, and 1869.[2] The agriculture of the Aztecs and Mayas is treated in Max Steffen's *Die Landwirtschaft bei den altamerikanischen Kulturvölkern* (Leipzig, 1883).[3]

The working of flint or obsidian into arrow-points or cutting implements is a process by pressure that has not been wholly lost. Old workshops, or the chips of them, have been discovered, and they are found in numerous localities (Wilson's *Prehistoric Man*, i. 75, 79; Abbott's *Primitive Industry*, and Putnam in the *Bull. Essex Institute*), but Powell in his *Report of Explorations of the Colorado of the West* (1873) does not, as Wilson says he does, describe the present ways.[4]

Wilson (*Prehistoric Man*, i. ch. 4 and 7) in an essay on the bone and ivory workers substitutes for the corresponding words usually employed in classifying stone implements the terms palæotechnic and neotechnic, as indicating periods of progress, in order that the art of making tools in horn, bone, shell, and ivory might have a better recognition, as of equal importance with that of making such in stone. Separate treatises are few. Morgan has a paper on the bone implements of the Arickarees in the *21st Rept. of the Regents of the University of the State of N. Y.* (1871), and Rau's monograph on *Prehistoric fishing in Europe and North America*, one of the *Smithsonian Contributions* (1884), involves the making of fish-hooks of bone. See also Putnam in the *Peabody Museum Reports*, and in *Wheeler's Survey*, vol. vii.; Wyman's contributions on the shell heaps, and the *Journal of the Cincinnati Soc. of Nat. Hist.* for such as have been found in the ash-pits of Madisonville. On shell-work there is a section in Foster's *Prehistoric Races* (p. 234); a paper by W. H. Holmes in the *Second Rept. of the Bureau of Ethnology* (p. 179); and one on American shell-work and its affinities by Miss Buckland in the *Journal Anthropol. Inst.*, xvi. 155.

From the primitive materials of stone, bone, horn, or shell, we pass to metals; but as Wilson (i. p. 174) says, "if metal could be found capable of being wrought and fashioned without smelting or moulding, its use was perfectly compatible with the simple arts of the stone period, as a mere malleable stone;" and to the present day, he adds, the rude American race has no knowledge of working metal, except by pounding or grinding it cold.[5] The story which Brereton tells in his account of Gosnold's visit (1602) to New England, about the finding of abundant metal implements in use among the natives, is questioned (Baldwin's *Ancient America*, p. 62). We have the evidences of the early mining[6] of copper extending for over a hundred miles along the southern shores of Lake Superior and on Isle Royale, in the abandoned trenches and tools first discovered in 1847; and in one case there was found a mass of native copper (ten feet by three and two, and weighing over six tons) which had been elevated on a wooden frame prior to removal, and was discovered in this condition.[7] There are also indications that the manufacture of copper tools was carried on in the neighborhood of

a modern notion. For a century and a half after European museums began to gather stone implements they were reputed relics of Celtic art. Treatment of American art necessarily makes part of the works of Squier and Davis; Schoolcraft; Foster's *Prehistoric Races*, ch. 6; Lubbock's *Prehistoric Times*; Joly's *Man before Metals*. Cf. references in *Poole's Index* under "Stone Age" and "Stone Implements."

[1] Cf. S. D. Peet in *Amer. Antiquarian*, vii. 15.

[2] Rau is an authority on stone implements. See further his paper on stone implements in the *Smithsonian Rept.*, 1872; one on drilling stone without metal in *Ibid.* 1868; and one on cup-shaped and other lapidarian sculpture in the *Contributions to No. Amer. Ethnology*, vol. v. (Powell's *Rocky Mountain Survey*, 1882). These carved, cup-like cavities in rocks are also discussed in Wilson's *Prehistoric Man*, vol. i. ch. 3, where it is held that they were formed by the grinding process in shaping the rounded end of tools. H. W. Henshaw in the *Amer. Jour. of Archæology* (i. 105) discusses another enigma in the stone relics, called sinkers or plummets. Foster (*Prehist. Races*, 230) believes they were used as weights to keep the thread taut in weaving.

[3] Cf. also Stevens's *Flint Chips*, 292, and Charnay, Eng. transl., p. 70.

[4] Cf. G. Crook "on the Indian method of making arrow-heads" in the *Smithsonian Rept.*, 1871, and C. C. Jones, Jr., on "the primitive manufacture of spear and arrow-points along the Savannah River" in *Ibid.* 1879. A paper by Sellers in a later report is of importance. Cf. Stevens' *Flint Chips*, pp. 75–85, and Schumacher in *Smithsonian Report*, 1873.

True flint was not often, if ever, used in America, but rather chert or hornstone, and quartz, though implements are found of jasper, chalcedony, obsidian, quartzite, and argillite. Cf. Rau on the stock in trade of an aboriginal lapidary in *Smithsonian Rept.* (1877); and Rosny's "Recherches sur les masques, le jade et l'industrie lapidaire chez les indigènes de l'Amérique" in *Arch. de la Soc. Amér. de France*, n. s., vol. i. Jade or jadite implements and ornaments have been found in Central America and Mexico, and others resembling them in northwestern America; but it is not yet clear that the unworked material, such as is used in the middle America specimens, is found in America *in situ*. Upon the solution of this last problem will depend the value of these implements when found in America as bearing upon questions of Asiatic intercourse. Cf. Dr. A. B. Meyer in the *Amer. Anthropologist* (vol. i., July, 1888, p. 231), and F. W. Putnam in the *Mass. Hist. Soc. Proc.*, Jan., 1886, and in the *Proc. Amer. Antiq. Society*.

[5] Wilson (*Prehistoric Man*, i. 200) points out that philology confirms it, the word for copper meaning "yellow stone." On the question of their melting metal see letter of Prof. F. W. Putnam in *Kansas City Rev. of Science*, Dec. 1881; Wilson (i. 361); Foster's *Prehistoric Races*, 293.

[6] Wilson (i. 209, 227) thinks the arboreal and other evidences carry the time when these mines were worked back, at latest, to a period corresponding to Europe's mediæval era. The earliest modern references to copper in this region are in Sagard in 1632 (Haven, p. 127) and in the *Jesuit Relation* of Allouez in 1666–67. Alexander Henry (*Travels and Adventures in Canada*) in 1765 is the earliest English explorer to mention it. Wilson holds to the belief that the present race of red Indians had no knowledge of these mining practices, but that they knew simply chance masses or exposed lodes. Wilson (i. 362) also gives reasons for supposing that the Lake Superior mines may have been a common meeting ground for all races of the continent.

[7] Wilson, i. 205. MacLean's *Moundbuilders*, ch. 6, gives a section of the shaft as when discovered.

the mines (Wilson, i. 213); and chemical tests have shown that a popular belief in the tempering of metal by these early peoples is without foundation.[1]

It seems to be a fact that while in the use of metals an intermediate stage of pure copper, as coming between the use of bone and stone and the use of alloyed metals, was not until comparatively recently suspected in Great Britain, the "peculiar interest attaches to the metallurgy of the new world that there all the earlier stages are clearly defined: the pure native metal wrought by the hammer without the aid of fire; the melted and moulded copper; the alloyed bronze; and the smelting, soldering, graving, and other processes resulting from accumulating experience and matured skill" (Wilson, i. 230). It is in the regions extending from Mexico to Peru that the art of alloying introduces us to the American bronze age. Columbus in his fourth voyage found in a vessel which had come alongside from Yucatan crucibles to melt copper, as Herrera tells us; and Humboldt was among the earliest to discover tools alloyed of copper and tin, and many such alloys have since been recognized among Peruvian bronzes (Wilson, i. 239). In Mexico, metallurgic arts were carried perhaps even farther in casting and engraving, and not only the results but the evidences of their mining places have remained to our day (*Ibid.* i. 248). It seems evident, however, that experimenting with them had not carried them so near the perfect combination for tool-making (one part tin to nine parts copper) as the bronze people of Europe had reached, though they fell considerably short of the exact standard (*Ibid.* i. 254). Doubt has sometimes been expressed of Mexican mining for copper, as by Frederick von Hellwald (*Compte Rendu, Cong. des Américanistes*, 1877, i. 51); but Rau indicated the references[2] to Short (p. 94), which forcibly led him to the conclusion that the Mexicans mined copper to turn into tools.[3] Among the Mayas, Nadaillac (p. 269) contends that only copper and gold were in use. Bancroft (ii. 749) thinks the use of copper doubtful, and if used, that it must have been got from the north. He cites the evidences of the use of gold. William H. Holmes discusses *The use of gold and other metals among the ancient inhabitants of Chiriqui, Isthmus of Darien* (Washington, 1887). As to iron, that found in the Ohio mounds, only of late years, has been proved to be meteoric iron by Professor Putnam (*Amer. Antiq. Soc. Proc.*, Apr., 1883). Bancroft (i. 164) says iron was in use among the British Columbian tribes before contact with the whites, but it was probably derived through some indirect means from the whites. Though iron ore abounds in Peru, and the character of the Peruvian stone-cutting would seem to indicate its use, and though there is a native word for it, no iron implements have been found.[4] There is not much recorded of the use of silver. It has been found by Putnam in the mounds in thin sheets, used as plating for other metals.[5] He has also found native silver in masses, and in one case a small bit of hammered gold.

Wilson, in 1876, while regretting the dispersion of the William Bullock collection of pottery, the destruction of that formed by Stephens and Catherwood, and the transference to an English museum of most of the

[1] Of the Lake Superior mines, the earliest intelligent account we have is in C. T. Jackson's *Geological Report to the U. S. Gov't*, 1849; but a more extended and connected account appeared the next year in the *Report on the Geology of Lake Superior* (Washington, 1850), by J. W. Foster and J. D. Whitney, which is substantially reproduced in Foster's *Prehistoric Races* (1873), ch. 7. Meanwhile, Col. Charles Whittlesey had published in vol. xiii. of the *Smithsonian Contributions* his *Ancient Mining on the shores of Lake Superior* (Washington, 1863, with a map), which is on the whole the best account, to be supplemented by his paper in the *Memoirs* of the Boston Society of Natural History. Jacob Houghton supplied a description of the "ancient copper mines of Lake Superior" to Swineford's *History and Review of the mineral resources of Lake Superior* (Marquette, 1876). Cf. also *Annals of Science* (Cleveland), i. for 1852; Dawson's *Fossil Men*, 61; Baldwin's *Ancient America*, 42; Wilson's *Prehistoric Man*, i. 204; Dr. Harvey Read in the *Dist. Hist. Soc. Report*, ii. (1878); Joseph Henry in the *Smithsonian Reports* (1861; also in 1862); and Short, p. 89, with references.

On the mines at Isle Royale, see Henry Gillman's "Ancient works at Isle Royale" in *Appleton's Journal*, Aug. 9, 1873; *Smithsonian Repts.*, 1873, 1874, by A. C. Davis; the *Proceedings* of the Amer. Asso. for the Advancement of Science, 1875; and Professor Winchell in *Popular Science Monthly*, Sept., 1881.

See further, on the copper implements of these ancient workers: Abbott's *Primitive Industry*, ch. 28; Foster's *Prehistoric Races*, 251; P. R. Hoy's *How and by whom were the copper implements made?* (Racine, 1886, in *Wisconsin Acad. of Science*, iv. 132); J. D. Butler's address on "Prehistoric Wisconsin" in the *Wisconsin Hist. Coll.*, vol. vii. (see also vol. viii.), with his "Copper Age in Wisconsin" in the *Proc. of the Amer. Antiquarian Society*, April, 1877, and his paper on copper tools in the *Wisconsin Acad. of Science*, iii. 99; H. W. Haynes on "Copper implements of America" in *Proc. Amer. Antiq. Soc.*, Oct., 1884, p. 335; Putnam on the copper objects of North and South America preserved in the Peabody Museum (*Reports*, xv. 83); Read and Whittlesey in the *Final Report, Ohio Board Cent. Managers*, 1877, ch. 3; and *Poole's Index*, p. 300. Reynolds has recently in the *Journal of the Anthropol. Soc.* (Washington) claimed copper mining for the modern Indians.

[2] Clavigero (Philad., Eng. transl., i. 20); Prescott, i. 138; Folsom's ed. of Cortes' letters, 412; Lockhart's transl. of Bernal Diaz (Lond., 1844, i. 36).

[3] Cf. on copper implements from Mexico: P. J. J. Valentini's *Mexican copper tools: the use of copper by the Mexicans before the Conquest; and The Katunes of Maya history, a chapter in the early history of Central America. From the German, by S. Salisbury, jr.* (Worcester, 1880), from the *Amer. Antiq. Soc. Proc.*, Apr. 30, 1879; F. W. Putnam in *Ibid.*, n. s., ii. 235 (Oct. 21, 1882); Charnay, Eng. transl., p. 70; H. L. Reynolds, Jr., on the "Metal art of ancient Mexico" in *Popular Science Monthly*, Aug., 1887 (vol. xxxi., p. 519).

[4] Cf. St. John Vincent Day's *Prehistoric use of iron and steel: with observations* (London, 1877). This book grew out of papers printed in the *Proc. Philosoph. Soc. of Glasgow* (1871–75).

[5] Cf. Dr. Washington Matthews on the "Navajo silversmiths" in the *2d Rept. Bureau of Ethnol.* (Washington, 1883), p. 167.

specimens gathered by Squier and Davis, lamented that no American collection [1] had been yet formed adequate to the requirements of the students of American archæology and ethnology. Since that date, however, the collections in the National Museum (Smithsonian Institution) at Washington and in the Peabody Museum at Cambridge have largely grown; and especially for the fictile art and work in stone of Spanish North America the Museo Nacional in Mexico has assumed importance. The collection in the possession of the American Philosophical Society in Philadelphia,[2] since transferred to the Philadelphia Academy, is also of value for the study of the pottery of middle America.

Rau has supplied a leading paper on American pottery in the *Smithsonian Report*, 1866; and E. A. Barber has touched the subject in papers at the Copenhagen, Luxembourg, and Madrid meetings of the Congrès des Américanistes, and in the *American Antiquarian* (viii. 76).[3] W. H. Holmes has a paper on the origin and development of form and of ornament in ceramic art in the *Fourth Report, Bureau of Ethnology*, p. 437.

For local characters there are various monographs.[4]

There is no satisfactory evidence that the potter's wheel was known to any American tribe; but Wilson, in his chapter on ceramic art (*Prehistoric Man*, ii. ch. 16), feels convinced that the early potter employed some sort of mechanical process, giving a revolving motion to his clay.

Modelling in clay for other purposes than the making of vessels is also considered in this same seventeenth chapter of Wilson, and the subject runs, as respects masks, figurines, and general ornamentation, into the wide range of aboriginal art, which necessarily makes part of all comprehensive histories of art. W. H. Dall has a paper on Indian masks in the *Third Report, Bureau of Ethnology*, p. 73. The subject is further treated by Wilson in a paper on "The artistic faculty in the aboriginal races," in the *Proceedings* (iii., 2d part, 67, 119) of the Royal Society of Canada, and again in a general way by Nadaillac on *L'art préhistorique en Amérique* (Paris, 1883), taken from the *Revue des deux Mondes*, Nov. 1, 1883.[5]

MEXICAN CLAY MASK.*

As regards the textile art in prehistoric times, see for a general view W. H. Holmes in the *American Antiquarian*, viii. 261; and the same archæologist has treated the subject on the evidences of the impression of textures as preserved in pottery, in the *Third Rept. Bur. of Ethnology*, p. 393. Cf. Sellers in *Popular Science Journal*, and Wyman in *Peabody Museum Reports*.

J. W. Foster first made (1838) the discovery of relics of textile fabrics of the moundbuilders; but he did not announce his discovery till at the Albany meeting (1851) of the American Association for the Advancement of Science (*Transactions*, 1852, vol. vi. p. 375). He tells the story in his *Prehistoric Races*, p. 222, and figures the implements, found in the mounds, supposed to be employed in the making their cloth with warp

[1] The chief European collections are in the British Museum, the Society of Antiquaries of Scotland, the Louvre, and at Copenhagen, Vienna, Brussels, not to name others; and among private ones, the Christy and Evans collections in England and the Unde in Heidelberg.

[2] *Transactions*, n. s., iii. 510.

[3] Cf. Lucien de Rosny's "Introduction à une histoire de la céramique chez les indiens du nouveau monde" in the *Archives de la Soc. Amér. de France*, n. s., vol. i., and Stevens' *Flint Chips*, 241. Further references: Wilson's *Prehist. Man*, ii. ch. 17; Catlin's *N. A. Indians*, ch. 16; F. V. Hayden's *Contrib. to the Ethnog. of the Missouri Valley*, 355; A. Demmin's *Hist. de la Céramique* (Paris, 1868–1875); Nadaillac's *Les Premiers Hommes*, and his *L'Amérique préhistorique*, ch. 4.

[4] For the Atlantic coast, papers by Abbott (*American Naturalist*, Ap. 72, etc.), later more comprehensively treated in his *Primitive Industry*, ch. 11; and for the middle Atlantic region, a paper by Francis Jordan, Jr., in the *Amer. Philosoph. Soc. Proc.* (1888, vol. xxv.). For Florida, Schoolcraft in the *New York Hist. Soc. Proc.*, 1846, p. 124. For the moundbuilders, Foster's *Prehistoric Races*, p. 237, and in *Amer. Naturalist*, vii. 94 (Feb., 1873); Nadaillac, ch. 4; and Putnam in *Amer. Nat.*, ix. 321, 393, and *Peabody Mus. Repts.*, viii. For the Mississippi Valley in general, Edw. Evers in *The Contributions to the archæology of Missouri;* W. H. Holmes in the *Fourth Report of the Bureau of Ethnology*, an improvement of a paper in the *Proc. of the Davenport Acad. of Sciences*, vol. iv. Joseph Jones in the *Smithsonian Contrib.*, xxii., and Putnam in the *Peabody Mus. Repts.*, have described the pottery of Tennessee. The *Pacific R. R. Repts.* yield us something; and Putnam (*Reports*) was the first to describe the Missouri pottery. J. H. Devereux treats the pottery of Arkansas in the *Smithsonian Rept.*, 1872. On the Pueblo pottery, see papers of W. H. Holmes and F. H. Cushing in the *Fourth Rept. Bur. of Ethn.* (pp. 257, 743); and James Stevenson's illustrated catalogue in the *Third Rept.*, p. 511. F. W. Putnam (*Amer. Art Review*, Feb., 1881), supplementing his work in vol. vii. of Wheeler's Survey, thinks that the present Pueblo Indians make an inferior ware to their ancestors' productions. The pottery of the cliff-dwellers is described in Hayden's *Annual Rept.* (1876). Paul Schumacher explains the method of manufacturing pottery and basket-work among the Indians of Southern California in the *Peabody Museum Rept.*, xii. 521. O. T. Mason's papers in recent *Smithsonian Reports* and in the *Amer. Naturalist* are among the best investigations in this direction.

[5] For some special phases, see S. Blondel's *Recherches sur les bijoux des peuples primitifs . . . Mexicains et Péruviens* (Paris, 1876); F. W. Putnam's *Convention-*

* After a cut in Wilson's *Prehistoric Man*, ii. p. 33, of an example in the collections of the American Philosophical Society, in a totally different style from the usual Mexican terra-cottas; and Wilson remarks of it that one will look in vain in it for the Indian physiognomy. Tyler, *Anahuac*, 230, considers it a forgery.

and woof. Putnam has since made similar discoveries (*Peabody Museum Reports*). The subject is also treated in the *Proceedings* of the Davenport Academy and of the American Association for the Advancement of Science. The fabrics were preserved by being placed in contact with copper implements.

The Indians of New Mexico were found by the Spaniards in possession of the art of weaving. Cf. Washington Matthews on the Navajo weavers, in the *Third Rept. Bur. of Ethnology*, p. 371, and Bancroft (i. 582), who also records the making of fabrics by the wild tribes of Central America (*Ibid.* i. 766–67). He also notes the references to the textile manufactures of the Nahuas and Mayas (ii. 484, 752). The richest accumulation of graphic data relative to the fabrics of Peru is contained in the great work on the *Necropolis of Ancon*.

Feather-work was an important industry in some parts of the continent. The subject is studied in Ferdinand Denis' *Arte plumaria : Les plumes, leur valeur et leur emploi dans les arts au Méxique, au Pérou, au Brésil et dans les Indes et dans l'Océanie* (Paris, 1875).[1]

Lewis H. Morgan's *Houses and House-life of the American Aborigines* (Washington, 1881) is the completest study of the habitations of the early peoples; but it is written too exclusively in the light of universal communal custom, and this must be borne in mind in using it. The edifices of middle America and Peru have been given a bibliographical apparatus in another part of the present volume; but references may be made to Wilson's *Prehistoric Man* (ii. ch. 16), Viollet le Duc's *Habitations of Man*, translated by R. Bucknall (Boston, 1876), and to Bandelier's *Archæological Tour*, 226, where he quotes as typical the description of a native house in 1583, drawn by Juan Bautista Pomar.

There is no good comprehensive account of American prehistoric trade. The T-shaped pieces of copper in use by the Mexicans came nearest to currency as we understand it, unless it be the wampum of the North American Indians, and the shell money in use on the Pacific coast; but it should be remembered that copper axes and copper plates served such a purpose with some tribes.[2] The Peruvians used weights, but the Mexicans did not. The latter had, however, a system of measures of length.[3] The canoe was a great intermediary in the practice of barter.[4] The Peruvians alone understood the use of sails, and the earliest Spanish navigators on the Pacific were surprised at what they thought were civilized predecessors in those seas when they espied in the distance the large white sails of the Peruvian rafts of burden.[5] The chief source of trade in such conditions was barter, and we know how the Mexican travelling merchants got information that was availed of by the Mexican marauders in their invasions. Bandelier[6] gives us the references on the barter system, the traders, and the currency in that country, and we need to consult Dr. W. Behrnauer's *Essai sur le Commerce dans l'ancien Méxique et en Pérou*, in the *Archives de la Soc. Amér. de France* (n. s., vol. i.).

All the treatises on the mounds of the Ohio Valley derive illustrations of intertribal traffic from the shells of the coast, the copper of Lake Superior, the mica of the Alleghanies, the obsidian of the Rocky Mountains or of Mexico, and the unique figurines which the explorations of the mounds have disclosed. Charles Rau has a paper on this aboriginal trade in North America, published in the *Archiv für Anthropologie* (Braunschweig, 1872, vol. iv.), which was republished in English in the *Smithsonian Report*, 1872, p. 249. Bancroft's references under "Commerce" (v. p. 668) will help the student out in various particulars.

alism in Ancient American Art (Salem, 1887, from the *Bull. Essex Inst.*, xviii., for 1886); Mexican masks in Stevens' *Flint Chips*, 328; S. D. Peet on "Human faces in aboriginal art," in the *American Antiquarian* (May, 1886, or viii. 133); the description of terra-cotta figures in Herman Strebel's *Alt-Mexico*. A terra-cotta vase in the Museo Nacional is figured in Brasseur's *Popul Vuh* (1861).

It is not known that stringed instruments were ever used, notwithstanding the suggestion of the twanging of the bow-string; but museums often contain specimens of musical pipes used by the aborigines. The opening chapter of J. F. Rowbotham's *Hist. of Music* (London, 1885) gives what evidence we have, with references, as to kinds of music common to the American aborigines, and their fictile wind instruments. Cf. A. J. Hipkins' *Musical instruments, historic, rare, and unique. The selection, introduction, and descriptive notes by A. J. Hipkins; illustrated by William Gibb* (Edinburgh, 1888); H. T. Cresson on Aztec music in the *Proc. Acad. Nat. Sciences* (Philad., 1883); and Wilson's *Prehistoric Man* (ii. 37), with the references in Bancroft's index (v. p. 717).

In Nott and Gliddon's *Indigenous Races of the Earth* (Philad., 1857) there is a section by Francis Pulszky on "Iconographic researches on human races and their art."

[1] Mrs. Zelia Nuttall's essay on some Mexican feather-work preserved in the Imperial Museum at Vienna appeared in the *Archæol. and Ethnolog. Papers of the Peabody Museum*, vol. i. no. 1 (Cambridge, 1888), and here she discusses the question if this is a standard or head-dress, and holds it to have been a head-dress. The contrary view is taken by F. von Hochstetter in his *Ueber Mexicanische Reliquien aus der Zeit Montezuma's* (Vienna, 1884), who supposes it to have been among the presents sent by Cortes in 1519 to Charles V., in the possession of whose nephew it is known to have been in 1596.

[2] Cf. Horatio Hale on *The Origin of Primitive Money* (N. Y., 1886, — from the *Popular Science Monthly*, xxviii. 296); W. B. Weedon's *Indian Money as a factor in New England Civilization* (Baltimore, 1884, — Johns Hopkins (University Studies); Ashbel Woodward's *Wampum* (Albany, 1878); Ernst Ingersoll in the *Amer. Naturalist* (May, 1883); and the cuts of wampum belts in the *Second Rept. Bur. Ethnology* (pp. 242, 244, 246, 248, 252, 254).

[3] Cf. D. G. Brinton's *The lineal measures of the Semi-civilized nations of Mexico and Central America. Read before the American Philosophical Society, Jan. 2, 1885* (Philadelphia, 1885).

[4] Wilson's *Prehistoric Man*, i. ch. 6.

[5] Wilson, i. 168. See *post*, Vol. II. 508, for an old cut of a raft under sail.

[6] *Peabody Mus. Rept.*, ii. 602–8.

IV.

BIBLIOGRAPHICAL NOTES ON AMERICAN LINGUISTICS.

By the Editor.

It cannot be said that the study of American linguistics has advanced to a position wholly satisfactory. It is beset with all the difficulties belonging to a subject that has not been embraced in written records for long periods, and it is open to the hazards of articulation and hearing, acting without entire mutual confidence. And yet we may not dispute Max Müller's belief,[1] that it is the science of language which has given the first comprehensive impulse to the study of mankind.

Out of the twenty distinct sounds which it is said the voice of man can produce,[2] there have been built up from roots and combinations a great diversity of vocabularies. Comparisons of these, as well as of the methods of forming sentences, have been much used in investigations of ethnical relations. Of these opposing methods, neither is sufficiently strong, it is probable, to be pressed without the aid of the other, though the belief of the Bureau of Ethnology at Washington, under the influence of Major Powell, practically discards all tests but the vocabulary, in tracing ethnological relations. It is held that this one test of words satisfies, as to customs, myths, and other ethnological traits, more demands of classifications than any other. Granted that it does, there are questions yet unsolvable by it; and many ethnologists hold that there are still other tests, physiological, for instance,[3] which cannot safely be neglected in settling such complex questions. The favorite claim of the Bureau is that its officers are studying man as a human being, and not as an animal; but it is by no means sure that the physical qualities of man are so disconnected with his mind and soul as to be unnecessary to his interpretation. Even if language be given the chief place in such studies, there is still the doubt if the vocabulary can in all ways be safely followed to the exclusion of the structure of the language; and it is not to be forgotten, as Haven recognized thirty years ago, that "one of the greatest obstacles to a successful and satisfactory comparison of Indian vocabularies is caused by the capricious and ever-varying orthography applied by writers of different nations." This is a chance of error that cannot be eliminated when we have to deal with lists of words made in the past, by persons not to be communicated with, in whom both national and personal peculiarities of ear and vocal organs may exist to perplex. A part of the difficulty is of course removed by trained assistants acting in concert, though in different fields; but the individual sharpness or dulness of ear and purity and obscurity of articulation will still cause diversity of results, — to say nothing of corresponding differences in the persons questioned. There is still the problem, broader than all these divisionary tests, whether language is at all a safe test of race, and on this point there is room for different opinions, as is shown in the discussions of Sayce, Whitney, and others.[4] "Any attempt," says Max Müller, "at squaring the classification of races and tongues must necessarily fail."[5] On the other hand, George Bancroft (Final revision, ii. 90) says that "the aspect of the red men was so uniform that there is no method of grouping them into families but by their languages."

It is the wide margin for error, already indicated, that vitiates much that has already been done in philological comparisons, and the over-eager recognition at all times of what is thought to be the word-shunting of "Grimm's Law" has doubtless been responsible for other confusions.[6]

[1] *Chips*, ii. 248. Cf. Dabry de Thiersant's *Origine des indiens* (Paris, 1883), p. 187.

[2] It has been a question whether the palæolithic man talked, and it has been asserted and denied, from the character of certain inferior maxillary bones found in caves, that he had the power of articulate speech. Dr. Brinton has recently, from an examination of the lowest stocks of linguistic utterances now known, endeavored to set forth "a somewhat correct conception of what was the character of the rudimentary utterances of the race." Cf. Brinton, *Language of the Palæolithic Man*, Philadelphia, 1888; Mortillet, *La préhistorique Antiquité de l'Homme* (Paris, 1883); H. Steinthal, *Der Ursprung der Sprache* (Berlin, 1888). Horatio Hale, on "The origin of languages and the antiquity of speaking man," in the *Am. Assoc. Adv. Sci. Proc.*, xxxv. 279, cites the views of some physiologists to show that the pre-glacial man could not talk, because there are only rudimentary signs of the presence of important vocal muscles to be discovered in the most ancient jaw-bones which have been found. Rau inferred that the totally diverse character, as he thought, of the American tongues indicated strongly that the earliest man could not articulate (*Contrib. to N. A. Ethnology*, v. 92) For other somewhat wild speculations, see Col. E. Carette's *Etude sur les temps antéhistoriques*, *La Langage* (Paris, 1878).

[3] Morgan thought he had found a test in his *Systems of consanguinity and affinity of the Human Family* (Washington, 1871).

[4] *Journal Anthropological Inst.*, v. 216.

[5] *Science of Language*, i. 326.

[6] For recognition of it in American philology, see Bancroft, iii. 670, and Short, 471.

Most of the general philological treatises touch more or less intimately the question of language as a test of race,[1] and all of them engage in tracing affinities, each with confidence in a method that others with equal assurance may belittle.[2] Thus Bancroft,[3] reflecting an opinion long prevalent, says that "positive grammatical rules carry with them much more weight than mere word likenesses,"[4] while, on the contrary, Dawson[5] says that "grammar is, after all, only the clothing of language. The science consists in its root-words; and multitudes of root-words are identical in the American languages over vast areas." This last proposition is, as we have seen, the principle on which this inquiry is now conducted with governmental patronage. "Each American language," says George Bancroft, in his chapter on the dialects of North America, "was competent of itself, without improvement of scholars, to exemplify every rule of the logician and give utterance to every passion." In accordance with such perhaps extreme views, it has been usually said that the American languages are in development in advance of aboriginal progress in other respects. It is another common observation that while a certain resemblance runs through all the native tongues,[6] there is no such general resemblance to the old-world languages;[7] but at the same time the linguistic proof of the unity of the American race is not irrefragable,[8] and it would take tens of thousands of years, as Brinton holds, if there had been a single source, for the eighty stocks of the North American and for the hundred South American speeches to have developed themselves in all their varieties.[9] Proceeding beyond stocks to dialects, and counting varieties, Ludewig, in his *Literature of the American Languages*, gave 1,100 different American languages; but an alphabetical list given by H. W. Bates in his *Central America, West Indies and South America* (London, 1882, 2d ed.)[10] affords 1,700 names of such. The number, of course, depends on how exclusive we are in grouping dialects. Squier, for instance, gives only 400 tongues for both North and South America; for, as Nadaillac says, "philology has no precise definition of what constitutes a language."[11]

[1] Cf. Waitz, *Introd. to Anthropology* (Eng. transl.), p. 238; Wedgwood, *Origin of Language;* Lubbock, *Origin of Civilization*, ch. 8; Tylor's *Anthropology*, ch. 6; Topinard's *Anthropologie;* J. P. Lesley's *Man's Origin and Destiny* (who considers the test so far a failure); William D. Whitney's "Testimony of language respecting the unity of the human race," in the *North American Review*, July, 1867.

[2] The "Lenguas y naciones Americanas" forms part of the first volume of Lorenzo Hervas's *Catálogo de las Lenguas de las Naciones Conocidas, y numeracion, division, y clases de estas segun la diversidad de sas idiomas y dialectos* (Madrid, 1800–1805, in 6 vols.), which served in some measure Johann Severin Vater, and J. C. Adelung in their *Mithridates, oder Allgemeine Sprachenkunde* (Berlin, 1806–17, in 4 vols.) and his *Analekten der Sprachenkunde* (Leipzig, 1821).

There has more been done so far to map out the ethnological fields of middle America than to determine those of the more northern parts. Cf. the map in Orozco y Berra's *Geografia de las lenguas de Mexico* (1864), and that in V. A. Malte-Brun's paper in the *Compte Rendu, Cong. des Américanistes*, 1877, ii. 10. The maps in Bancroft's *Native Races*, ii. and v., will serve ordinary readers. For the broader northern field, see the papers by L. H. Morgan and George Gibbs in the *Smithsonian Reports*, 1861, 1862. The Bureau of Ethnology have in preparation such a map, and they mark on it, it is understood, about seventy distinct stocks.

Cf. Horatio Hale on "Indian migrations as evidenced by language," in the *Amer. Antiquarian*, v. 18, 108 (Jan., April, 1883), and issued separately, Chicago, 1883. Lucien Adam criticised the views of Hall in the Copenhagen *Compte Rendu, Cong. des Amér.*, 1883, p. 123.

[3] *Nat. Races*, iii. 558.

[4] Cf. *Am. Antiq. Soc. Proc.*, April, 1879.

[5] *Fossil Men*, 310.

[6] A prominent feature is the process of uniting words lengthwise, so to speak, which gives a single utterance the import of a sentence. This characteristic of the American languages has been called polysynthetic, incorporative, holophrastic, aggregative, and agglutinative. H. H. Bancroft instances the word for letter-postage in Aztec as being "Amatlacuilolitquitcatlaxtlahuilli," which really signifies by its component parts, "payment received for carrying a paper on which something is written." Cf. Brinton's *On polysynthesism and incorporation as characteristic of American languages* (Philad., 1885).

[7] Hayden says: "The dialects of the western continent, radically united among themselves and radically distinguished from all others, stand in hoary brotherhood by the side of the most ancient vocal systems of the human race."

[8] Morgan, in his *Systems of Consanguinity*, contends for this linguistic unity, though (in 1866) he admits that "the dialects and stock languages have not been explored with sufficient thoroughness."

[9] Gallatin says of them: "They bear the impress of primitive languages, . . . and attest the antiquity of the population, — an antiquity the earliest we are permitted to assume." This was of course written before the geological evidences of the antiquity of man were understood, and the remoteness referred to was a period near the great dispersion of Babel.

[10] The appendix of this work has a good general summary of the Ethnography and Philology of America, by A. H. Keane.

[11] The interlinking method of communication between tribes of different languages is what is called sign or gesture language, and the study of it shows that in much the same forms it is spread over the continent. It has been specially studied by Col. Garrick Mallery. Cf. his papers in the *Amer. Antiquarian*, ii. 218; *Proc. Amer. Asso. Adv. Science*, Saratoga meeting, 1880; and at length in the *First Annual Rept. Bur. of Ethnology* (1881). He notes his sources of information on pp. 395, 401. He had earlier printed under the Bureau's sanction his *Introduction to the Study of Sign Language* (Washington, 1880). The subject is again considered in the *Third Rept.* of the Bureau, p. xxvi. Cf. also W. P. Clark's *Indian Sign-language, with Explanatory Notes* (Philad., 1885). Morgan (*Systems of Consanguinity*, 227) expresses the opinion that it has the germinal principle "from which came, first, the pictographs of the northern Indians and of the Aztecs; and, secondly, as its ultimate development, the ideographic and possibly the hieroglyphic language of the Palenqué and Copan monuments."

In addition to languages and dialects, we have a whole body of jargons, a conventional mixture of tongues, adduced by continued intercourse of peoples speaking different languages. They grew up very early, where the French came in contact with the aborigines, and Father Le Jeune mentions one in 1633 (*Hist. Mag.*, v. 345). The Chinook jargon, for instance, was, if not invented, at least developed by the Hudson Bay Company's servants, out of French, English, and several Indian tongues (whose share predomi-

The most comprehensive survey of the bibliography of American linguistics, excluding South America, is in Pilling's *Proof-sheets of a bibliography of the languages of the North American Indians* (Washington, 1885), a tentative issue of the Bureau of Ethnology, already mentioned. Pilling also earlier catalogued the linguistic MSS. in the library of the Bureau of Ethnology, in Powell's *First Report* of that Bureau (p. 553), in which that bibliographer also gave a sketch of the history of gathering such collections. A section of the *Bibliotheca Americana* of Charles Leclerc (Paris, 1878) is given to linguistics, and it affords by groups one of the best keys to the literature of the aboriginal languages which we yet have, and it has been supplemented by additional lists issued since by Maisonneuve of Paris. Ludewig's *Literature of American Aboriginal Languages, with additions by W. Turner* (London, 1858), was up to date, thirty years ago, a good list of grammars and dictionaries, but the increase has been considerable in this field since then (Pilling's *Eskimo Languages*, p. 62). The libraries of collectors of Spanish-American history, as enumerated elsewhere,[1] have usually included much on the linguistic history, and the most important of the printed lists for Mexico and Central America is that of Brasseur de Bourbourg's *Bibliothèque Mexico-Guatémalienne, précédée d'un coup d'œil sur les études américaines dans leurs rapports avec les études classiques, et suivi du tableau, par ordre alphabétique, des ouvrages de linguistique américaine contenus dans le même volume* (Paris, 1871). This list is repeated with additions in the *Catalogue de Alphonse L. Pinart et . . . de Brasseur de Bourbourg* (Paris, 1883). Field's *Indian Bibliography* characterizes some of the leading books up to 1873; but the best source up to about the same date for a large part of North America is found in the notes in that section of Bancroft's *Native Races*, vol. iii., given to linguistics.[2] The several *Comptes Rendus* of the Congrès des Américanistes have sections on the same subject, and the second volume of the *Contributions to North American Ethnology*, published by the U. S. Geological Survey (Powell's), has been kept back for the completion of the linguistic studies of the government officials, which will ultimately, under the care of A. S. Gatschet, compose that belated volume. Major Powell, in his conduct of ethnological investigations for the United States government, has found efficient helpers in James C. Pilling, J. Owen Dorsey, S. R. Riggs, A. S. Gatschet, not to name others. Powell outlined some of his own views in an address on the evolution of language before the Anthropological Society of Washington, of which there is an abstract in their *Transactions* (1881), while the paper can be found in perfected shape as "The evolution of language from a study of the Indian languages," in the *First Report of the Bureau of Ethnology*.

Among the earliest of the students of the native languages in the north were the Catholic missionaries in Canada and in the northwest, and there is much of interest in their observations as recorded in the *Jesuit Relations*. We find a *Dictionnaire de la langue huronne* in the *Grand Voyage du Pays des Hurons* (Paris, 1632, etc.).

The most conspicuous of the English publications of the seventeenth century was the Natick rendering of the *Bible* for the Massachusetts Indians, undertaken by the Apostle John Eliot, as he was called, at the expense of the London Society for the Propagation of the Gospel. Eliot also published a *Grammar of the Massachusetts Indian Language* (Cambridge, 1666), which, with notes by Peter S. Duponceau and an introduction by John Pickering, was printed for the Mass. Hist. Society in 1822, as was John Cotton's *Vocabulary of the Massachusetts Indian Language* (Cambridge, 1830). Roger Williams' *Key into the language of America* has been elsewhere referred to.[3] The Rev. Jonathan Edwards wrote a paper on the language of the Mohegan Indians, which, with annotations by Pickering, was printed in the *Mass. Hist. Soc. Coll.* in 1823, and is called by Haven (*Archæol. U. S.*, 29) the earliest exposition of the radical connection of the American languages. Dr. James Hammond Trumbull, the most learned of the students of these eastern languages, has furnished various papers on them in the publications of the American Philological Association and of the American Antiquarian Society,[4] and has summarized the literature of the subject, with references, in the *Memorial Hist. of Boston* (vol. i.).

In the eighteenth century there were several philological recorders among the missionaries. Sebastian Rasle made a *Dictionary of the Abnake Language*, now preserved in MS. in Harvard College library, which, edited by John Pickering, was published as a volume of the *Memoirs* of the Amer. Academy of Arts and Sciences in 1833. A grammatical sketch of the Abnake as outlined in Rasle's *Dictionary* is given by M. C. O'Brien in the *Maine Hist. Soc. Coll.*, vol. ix. The publications of the American Philosophical Society in Philadelphia have preserved for us the vocabularies and grammars of the Delaware language, collected and arranged by John Heckewelder[5] and David Zeisberger, while the latter Moravian missionary collected a considerable MS. store of linguistic traces of the Indian tongues, a part of which is now preserved in Harvard College library.[6] One of this last collection, an *Indian Dictionary; English, German, Iroquois* (*the*

nates), to facilitate their trade with the natives, and does not contain, at an outside limit, more than 400 or 500 words. There is some reason to believe that the Indian portion of this jargon is older, however, than the English contact (Bancroft, iii. 632–3; Gibbs's *Chinook Dictionary*; Horatio Hale in Wilkes' *U. S. Explor. Exped.*).

[1] See the section on "Americana," with a foot-note on linguistic collections. Haven summed up what had been done in this field in 1855 in his *Archæology of the U. S.* p. 53.

[2] There is a less extensive survey, but wider in territory, in Short's *North Americans of Antiquity*, ch. 10.

[3] Vol. III. p. 355.

[4] See Pilling's *Proof-sheets*.

[5] Duponceau's report in Heckewelder, *Hist. Acc. of the Indian Nations*, 1819, is in the *Mass. Hist. Coll.*, 1822. Pickering says that Duponceau was the earliest to discover and make known the common characteristics of the American tongues.

[6] These are enumerated in the appendix of *The Calendar*

Onondaga), *and Algonquin* (*the Delaware*) (Cambridge, 1887,) has been carefully edited for the press by Eben Norton Horsford. Dr. John G. Shea published a *Dictionnaire Français-Onontagué, édité d'après un manuscrit du 17e siècle* (N. Y., 1859), which is preserved in the Mazarin library in Paris.

There was no attempt made to treat the study of the American languages in what would now be termed a scientific spirit by any English scholar till towards the end of the eighteenth century. The whole question of the origin of the Indians had for a long time been the subject of discussion, and it had of necessity taken more or less of a philological turn from the beginning; but the inquiry had been simply a theoretical one, with efforts to substantiate preconceived beliefs rather than to formulate inductive ones, as in such works as — not to name others — Adair's *American Indians* (London, 1775), where every trace was referable to the Jews, and Count de Gebelin's *Monde Primitif* (Paris, 1781), where a comparison of American and European vocabularies is given.[1]

A much closer student appeared in Benjamin Smith Barton, of Philadelphia, though he was not wholly emancipated from these same prevalent notions of connecting the Indian tongues with the old-world speeches. He says that he was instigated to the study by Pallas' *Linguarum totius orbis Vocabularia comparativa* (Petropolis, 1786, 1789), and the result was his *New View of the Origin of the tribes and nations of America* (Philad., 1797; again, 1798). He sets forth in his introduction his methods of study. Charlevoix had suggested that the linguistic test was the only one in studying the ethnological connections of these peoples; but Barton asserted that there were other manifestations, equally important, like the physical aspects, the modes of worship, and the myths. He examined forty different Indian languages, and thinks they show a common origin, and that remotely a connection existed between the old and new continents.

The most eminent American student[2] of this field in the early half of this century was Albert Gallatin. He began his observations in 1823, at the instance of Humboldt, and two years later he took advantage of a representative convocation of Indian tribes, then held in Washington, to continue his studies of their speech. In 81 tribes brought under his notice he found what he thought to be 27 or 28 linguistic families. This was a wider survey than had before been made, and he regretted that he was not privileged to profit by the vocabularies collected by Lewis and Clark, which had unfortunately been lost. At the request of the Amer. Antiquarian Society, he wrote out and enlarged this study in the second volume of their *Collections* in 1836, and advanced views that he never materially changed, believing in a very remote Asiatic origin of the tongues, and without excepting the Eskimos from his conclusions. In 1845, in his *Notes on the semi-civilized nations of Mexico*, his conclusions were much the same, but he made an exception in favor of the Otomis. At this time he counted more than a hundred languages, similar in structure but different in vocabularies, and he argued that a very long period was necessary thus to differentiate the tongues. At the age of eighty-seven Gallatin gave his final results in vol. ii. of the *Transactions of the American Ethnological Society* (1848). Gallatin published a review[3] of the volume on Ethnography and Philology, which had been prepared by Horatio Hale as the seventh volume of the *Publications of the Wilkes United States Exploring Expedition* (1838–42), and Hale himself, then in the beginning of his reputation as a linguistic scholar,[4] published some papers of his own in the same volume of the *Transactions*.[5]

The two Americans who have done more than others, without the aid of the government, to organize aboriginal linguistic studies are Dr. John Gilmary Shea of Elizabeth, New Jersey, and Dr. Daniel Garrison

of the Sparks MSS., issued by the library of Harvard University. They are also cited with some in other depositories by Pilling in his *Proof-sheets*.

[1] Also in J. B. Scherer's *Recherches historiques et géographiques sur le Nouveau Monde* (Paris, 1777).

[2] We know little of what Jefferson might have accomplished, for his manuscripts were burned in 1801 (Schoolcraft's *Ind. Tribes*, ii. 356). As early as 1894 the U. S. War Department issued a list of words, for which its agents should get in different tribes the equivalent words. Gallatin used these results. Different lists of test words have been often used since. George Gibbs had a list. The Bureau of Ethnology has a list.

[3] Cf. synopsis in Haven's *Archæol. U. S.*, p. 65.

[4] For Hale's later views see his *Origin of language and antiquity of speaking man* (Cambridge, 1886), from the *Proc. Amer. Ass. Adv. Science*, xxxv.; and his *Development of language* (Toronto, 1888), from the *Proc. Canadian Inst.*, 3d ser., vi.

[5] Among other workers in the northern philology may be named Schoolcraft in his *Indian Tribes* (ii. and iii. 340), who makes no advance upon Gallatin; W. W. Turner in the *Smithsonian Report*, vi.; R. S. Riggs adds a Dacota bibliography to his *Grammar and Dictionary of the Dacota language* (Washington, Smiths. Inst., 1852); George Gibbs in the *Smithsonian Repts.* for 1865 and 1870, and as collaborator in other studies, of which record is made in J. A. Stevens' memoir of Gibbs, first printed in the *N. Y. Hist. Soc. Coll.*, and then in the *Smithsonian Report* for 1873; F. W. Hayden's *Contributions to the ethnography and philology of the Indian tribes of the Missouri Valley* (Philad., 1862), being vol. xiii. of the *Trans. Amer. Philosophical Soc.*

A contemporary of Gallatin, but a man sorely harassed, as others see him, with eccentricities and unstableness of head, was C. F. Rafinesque, who had nevertheless a certain tendency to acute observation, which prevents his books from becoming wholly worthless. His first publication was an introduction to Marshall's *History of Kentucky*, which he printed separately as *Ancient History, or Annals of Kentucky, with a survey of the ancient monuments of North America, and a tabular view of the principal languages and primitive nations of the whole earth* (Frankfort, Ky., 1824). In this he makes a comparison of four principal words from fourteen Indian tongues with thirty-four primitive languages of the old world. In 1836 he printed at Philadelphia *The American Nations, or outlines of their general history, ancient and modern, including the whole history of the earth and mankind in the western hemisphere; the philosophy of American history; the annals, traditions, civilization, languages, etc., of all American nations, tribes, empires and states* (in two volumes).

Brinton of Philadelphia. Of Shea's *Library of American Linguistics* he has given an account in the *Smithsonian Rept.*, 1861.[1]

Dr. Brinton has set forth the purposes of his linguistic studies in an address before the Pennsylvania Historical Society, *American Aboriginal Languages and why we should study them* (Philad., 1885, — from the *Pennsylvania Magazine of History*, 1885, p. 15). In starting his *Library of Aboriginal American Literature*, he announced his purpose to put within the reach of scholars authentic materials for the study of the languages and culture of the native races, each work to be the production of the native mind, and to be printed in the original tongue, with a translation and notes, and to have some intrinsic historical or ethnological importance.[2]

The other considerable collections are both French. Alphonse L. Pinart published a *Bibliothèque de linguistique et d'ethnographie Américaines* (Paris and San Francisco, 1875–82).[3]

The publishing house of Maisonneuve et Compagnie of Paris, which has done more than any other business firm to advance these studies, has conducted a *Collection linguistique Américaine*, of much value to American philologists.[4]

Other French studies have attracted attention. Pierre Etienne Duponceau published a *Mémoire sur le système grammatical des langues de quelques nations indiennes de l'Amérique du Nord* (Paris, 1838).[5] He conducted a correspondence with the Rev. John Heckewelder respecting the American tongues, which is published in the *Transactions of the Amer. Philosophical Society* (Phil., 1819), and he translated Zeisberger's *Delaware Grammar*.

The studies of the Abbé Jean André Cuoq have been upon the Algonquin dialects,[6] and published mainly in the *Actes de la Société philologique* (Paris, 1869 and later). His monographic *Etudes philologiques sur quelques langues sauvages de l'Amérique* was printed at Montreal, 1866. It was the result of twenty years' missionary work among the Iroquois and Algonquins, and besides a grammar contains a critical examination of the works of Duponceau and Schoolcraft. Lucien Adam has been very comprehensive in his researches, his studies being collected under the titles of *Etudes sur six langues Américaines* (Paris, 1878) and *Examen grammatical comparé de seize langues Américaines* (Paris, 1878).[7]

[1] It embraces:

First Series: No. 1. J. G. Shea, *French Onondaga Dictionary*.

2. G. Mengarini, *Selish or Flat-head Grammar*.

3. B. Smith, *Grammatical Sketch of the Heve language*.

4. F. Arroyo de la Cuesta, *Grammar of the Mutsun language*.

5. B. Smith, *Grammar of the Pima or Névome language*.

6. M. C. Pandosy, *Grammar and Dictionary of the Yakama language*.

7. B. Sitjar, *Vocabulary of the language of the San Antonio Mission*.

8. F. Arroyo de la Cuesta, *Vocabulary or phrase-book of the Mutsun language*.

9. Abbé Maillard, *Grammar of the Micmaque language*.

10. J. Bruyas, *Radices Verborum Iroqœorum*.

11. G. Gibbs, *Alphabetical Vocabularies of the Clallam and Lummi*.

12. G. Gibbs, *Dictionary of the Chinook jargon*.

13. G. Gibbs, *Alphabetical Vocabulary of the Chinook language*.

Second Series: 1. W. Matthews, *Grammar and Dictionary of the language of the Hidatsa*.

2. W. Matthews, *Hidatsa-English Dictionary*.

The first series was printed in New York, 1860–63; the second, 1873–74. There is full bibliographical detail in Pilling's *Proof-sheets*.

[2] The following are already published:

1. *The Chronicles of the Mayas*, ed. by Brinton.

2. *The Iroquois Book of Rites*, ed. by Horatio Hale.

3. *The Comedy-ballet of Gueguence*, ed. by Brinton.

4. *The National Legend of the Creeks*, ed. by Albert S. Gatschet.

5. *The Lenâpé and their Legends*.

6 *The Annals of the Cakchiquels*, ed. by Brinton.

[3] This series contains:

1. Juan de Albornoz, *Arte de la lengua Chiapaneca y Doctrina Cristiana por Luis Barrientos* (Paris, 1875).

2. P. E. Pettitot, *Dictionnaire de la langue Dènè-Dindjie* (Paris, 1876).

3. P. E. Pettitot, *Vocabulaire Français-Esquimau* (Paris, 1876).

4. P. Franco, *Noticias de los Indios del Departamento de Veragua*, etc. (San Francisco, 1882).

Pilling (*Proof-sheets*, 589, 1042–1044) gives an account of Pinart's published and MS. linguistic collections, as well as (p. 587) of Francisco Pimentel's *Las Lenguas indígenas de México* (Mexico, 1862–65).

[4] It embraces:

1. E. Uricoechea, *Lengua Chibcha* (Paris, 1871).

2. Eujenio Castillo i Orozco, *Vocabulario Paèz-Castellano*, etc. (Paris, 1877).

3. Raymond Breton, *Grammaire Caraïbe*, *ed. par L. Adam et Ch. Leclerc* (Paris, 1878).

4. *Ollantai, drame, trad. par Pacheco Zegarra* (Paris, 1878).

5. R. Celedon, *La Lengua goajra, con una introd. por E. Uricoechea* (Paris, 1878).

6. L. Adam et V. Henry, *La Lengua Chiquita* (Paris, 1880).

7. Antonio Magio, *La Lengua de los Indios Baures* (Paris, 1880).

8. J. Crevaux, P. Sagot, et L. Adam, *Langues de la région des Guyanes* (Paris, 1882).

9. J. D. Haumonté, Parisot, et L. Adam, *La Langue Taensa* (Paris, 1882). This has been pronounced a deception.

10. Francisco Pareja, *La Lengua Timuquana*, 1614 (Paris, 1886).

[5] Cf. Pilling's *Proof-sheets*, pp. 217–218.

[6] Brinton (*Amer. Hero Myths*, 60), referring to Father Cuoq's *Lexique de la langue Iroquoise*, speaks of that author as "probably the best living authority on the Iroquois." Pilling, *Proof-sheets*, 185, etc., gives the best account of his writings. Cf. Mrs. E. A. Smith on the Iroquois in *Journal Anthropolog. Inst.*, xiv. 244.

[7] The languages covered are: Dakota, Chibcha, Nahuatl, Kechua, Quiché, Maya, Montagnais, Chippeway, Algonquin, Cri, Iroquois, Hidatsa, Chacta, Caraïbe, Kiriri, Guarani. Adam has been one of the leading spirits in the Congrès des Américanistes. There was published in 1882, as a part of the *Bibliothèque linguistique Américaine*, a *Grammaire et Vocabulaire de la langue taensa, avec*

The papers of the Count Hyacinthe de Charencey have been in the first instance for the most part printed in the *Revue de Linguistique*, the *Annales de Philosophie Chrétienne*, and the *Mémoires de l'Académie de Caen*, and have wholly pertained to the tongues south of New Mexico; but his principal studies are collected in his *Mélanges de philologie et de paléographie Américaines* (Paris, 1883).[1]

The most distinguished German worker in this field, if we except the incidental labors of Alexander and William von Humboldt,[2] is J. C. E. Buschmann, whose various linguistic labors cover the wide field of the west coast of North America from Alaska to the Isthmus, with some of the regions adjacent on the east. He published his papers in Berlin between 1853 and 1864, and many of them in the *Mémoires de l'Académie de Berlin*.[3]

Dr. Carl Hermann Berendt has published his papers in Spanish, English, and German, and some of them will be found in the *Smithsonian Reports*, in the Berlin *Zeitschrift für Ethnologie*, and in the *Revista de Mérida*. Under the auspices of the American Ethnological Society, a fac-simile reproduction of his graphic *Analytical Alphabet for the Mexican and Central American languages* was published in 1869, the result of twelve years' study in those countries.[4]

The languages of what are called the civilized nations of the central regions of America deserve more particular attention.

In the Mexican empire the Aztec was largely predominant, but not exclusively spoken, for about twenty other tongues were more or less in vogue in different parts. Humboldt and others have found occasional traces in words of an earlier language than the Aztec or Nahua, but different from the Maya, which in Brasseur's opinion was the language of the country in those pre-Nahua days. Bancroft, contrary to some recent philologists, holds the speech of the Toltec, Chichimec, and Aztec times to be one and the same.[5] It was perhaps the most copious and most perfected of all the aboriginal tongues; and in proof of this are cited the opinions of the early Spanish scholars, the successes of the missionaries in the use of it in imparting the subtleties of their faith, and the literary use which was made of it by the native scholars, as soon as they had adapted the Roman alphabet to its vocabulary and forms.[6]

textes traduits et commentés par J. D. Haumonté, Parisot, L. Adam. It was printed from a manuscript said to have been discovered in 1872, in the library of Mons. Haumonté. Dr. Brinton, finding, as he claimed, that Adam had been imposed upon, printed in the *American Antiquarian*, March, 1885, "The Tænsa Grammar and Dictionary, a Deception Exposed," the points of which were epitomized by Professor H. W. Haynes in the *American Antiquarian Society Proceedings* (April, 1885), and Adam answered in *Le Tænsa, a-t-il été forgé de toutes pièces* (Paris, 1885).

The languages of the southern and southwestern United States have been particularly studied by Albert S. Gatschet, among whose publications may be named *Zwölf Sprachen aus dem Südwesten Nord Amerikas* (Weimar, 1877); *The Timucua language* of Florida (Philad., 1878, 1880); *The Chumeto language* of California (Philad., 1882); *Der Yuma Sprachstamm* of Arizona and the neighboring regions (Berlin, 1877, 1883); *Wortverzeichniss eines Viti-Dialectes* (Berlin, 1882); *The Shetimasha Indians of St. Mary's Parish, Louisiana* (Washington, 1883); but his most important contribution is the linguistic, historic, and ethnographic introduction to his *Migration Legend of the Creek Indians* (Philad., 1884), in which he has surveyed the whole compass of the southern Indians. The extent of Mr. Gatschet's studies will appear from Pilling's *Proof-sheets*, pp. 285–292, 955.

[1] *Contents.* — 1. Sur quelques familles de langues du Méxique. 2. Sur différents idiomes de la Nouvelle-Espagne. 3. Sur la famille de langues Tapijulapane-Mixe. 4. Sur la famille de langue Pirinda-Othomi. 5. Sur les lois phonétiques dans les idiomes de la famille Mame-Huastèque. 6. Sur le pronom personnel dans les idiomes de la famille Maya-Quiché. 7. Sur l'étude de la prophétie en langue Maya d'Ahkuil-Chel. 8. Sur le système de numération chez les peuples de la famille Maya-Quiché. 9. Sur le déchiffrement des écritures calculiformes du Mayas. 10. Sur les signes de numération en Maya.

Pilling (*Proof-sheets*, pp. 145–148, 904–906) enumerates many of the separate publications.

[2] Brinton has printed *The philosophical grammar of the American languages as set forth by Wilhelm von Humboldt, with a translation of an unpublished memoir by him on the American verb* (Philad., 1885). The great work of A. von Humboldt and Bonpland, *Voyage aux régions équinoxiales du nouveau continent* (Paris, 1816–31), gives some linguistic matter in the third volume.

[3] These are enumerated in the list in Bancroft, i.; in Field, nos. 208–218; and in Leclerc, *Index;* with more detail in Pilling's *Proof-sheets*, pp. 102–110, 894–896. Cf. also Sabin, iii. nos. 9,521 etc.

[4] Brinton, who possesses his papers, published a *Memoir* of him in the *Am. Antiq. Soc. Proc.*, 1884. His publications and MS. collections are given in Pilling's *Proof-sheets*, pp. 72, 73, 879–881.

[5] He cites (iii. 725–26) many opinions; and quotes Sahagún as saying that the Apalaches were Nahuas and spoke the Mexican tongue (*Ibid.* iii. 727). Is this any evidence of the Floridian immigration?

[6] A considerable body of literature in this language has come down to us. Bancroft (iii. 728) enumerates a number of the principal religious manuals, etc. Icazbalceta in the first volume of his *Bibliografia Mexicana* (Mexico, 1886), in cataloguing the books issued in Mexico before 1600, includes all that were printed in the native tongue. Brinton gives some account of such native authors in his *Aboriginal American authors and their productions, especially those in the native languages. A chapter in the history of literature* (Philad., 1883). Cf. his paper in the *Congrès des Amér.*, Copenhagen, 1883, p. 54. Bancroft (iii. 730) gives some citations as to its literary value. Brinton has illustrated this quality in some of his lesser monographs, as in his *Ancient Nahuatl Poetry* (Philad., 1887); and in his *Study of the Nahuatl language* (1886), in which he gives specimens and enumerates the dictionaries and texts. He says there are more than a hundred authors in it (*Amer. Antiquarian*, viii. 22). Icazbalceta has collected many Nahua MSS., and his brother-in-law, Francisco Pimentel, has used them in his *Cuadro descriptivo y comparativo de las Lenguas indígenas de México* (1862), of which there is a German translation by Isidor Epstein (N. Y., 1877). This is based on a second augmented edition (Mexico, 1874–75), in which the tongues of northern Mexico are better represented, and a general classification of the languages is added. Pimentel (i. 154) asserts that it is a mistake to suppose that the Chichimecs spoke Nahua. Cf.,

The Maya has much the same prominence farther south that the Nahua has in the northerly parts of the territory of the Spanish conquest, and a dialect of it, the Tzendal, still spoken near Palenqué, is considered to be the oldest form of it, though probably this dialect was a departure from the original stock. It is one of the evidences that the early Mayas may have come by way of the West India islands that modern philologists say the native tongues of those islands were allied to the Maya. Bancroft (iii. 759, with other references, 760) refers to the list of spoken tongues given in Palacio's *Carta al Rey de España* (1576) as the best enumeration of the early Spanish writers.[1] For its literary value we must consult some of the authorities like Orozco y Berra, mentioned in connection with the Aztec. Squier published a *Monograph of authors who have written on the languages of Central America, and collected vocabularies and composed works in the native dialects of that country* (Albany, 1861, — 100 copies), in which he mentions 110 such authors, and gives a list of their printed and MS. works. Those who have used these native tongues for written productions are named in Ludewig's *Literature of the Amer. Aborig. Languages* (London, 1858) and in Brinton's *Aboriginal American Authors* (Phila., 1883).[2]

however, Bancroft (iii. 724) and Short, 255, 480. Pimentel's opinions are weighty, and follow in this respect those of Orozco y Berra, Sahagún, Ixtlilxochitl; but later, Veytia had maintained the reverse.

Lucien Adam includes the Nahua in his *Etudes sur six langues Américaines* (Paris, 1878). Aubin wrote "Sur la langue Méxicaine et la philologie Américaine" in the *Archives de la Soc. Amér. de France*, n. s., vol. i. Brasseur contributed various articles on Mexican philology to the *Revue Orientale et Américaine*. Dr. C. Hermann Berendt formed an *Analytical Alphabet for the Mexican and Central America languages* (N. Y., 1869). Buschmann has a study in the *Mémoirs de l'Académie de Berlin*, and separately, *Ueber die Astekischen Ortsnamen* (Berlin, 1853). Henri de Charencey in his *Mélanges de Philologie* (Paris, 1883) has a paper "Sur quelques familles de langues du Méxique." V. A. Malte-Brun gave in the *Compte Rendu, Cong. des Américanistes*, 1877 (vol. ii. p. 10), a paper "La distribution ethnographique des nations et des langues au Méxique." Reference has been made elsewhere to the important publication of Manuel Orozco y Berra, *Geografia de las lenguas y carta etnográfica de México, precedidos de un ensayo de classificacion de las mismas lenguas y de apuntes para las inmigraciones de las tribus* (Mexico, 1864). The work is said to be the fruit of twelve years' constant study, and to have been based in some part on MSS. belonging to Icazbalceta, dating back to the latter part of the sixteenth century (enumerated in *Peab. Mus. Repts*, ii. 559). There is some adverse criticism. Peschel (*Races of Men*, 438) thinks the linguistic map of Mexico in Orozco y Berra's work the only good feature in the book, since the author spreads old errors anew in consequence of his unacquaintance with Buschmann's researches. A series of linguistic monographic essays on the Aztec names of places is embraced in Dr. Antonio Peñafiel's *Nombres Geografico de Mexico. Catalogo alfabetico de los nombres de lugar pertenecientes al idioma "Nahuatl" estudio jeroglifico de la matricula de los tributos del codice Mendocino* (Mexico, 1885). In the *Archives de la Soc. Amér. de France*, n. s., 179, iii. there is an essay by Siméon, "La langue Méxicaine et son histoire."

The affiliation of the Aztec with the Pueblo stocks is traced by Bancroft, iii. 665, who follows out the diversities of those stocks (pp. 671, 681). Cf. for various views Morgan's *Systems of Consanguinity*, 260; Buschmann's *Die Völker und Sprachen Neu Mexico's*, and *First Rept. Bur. of Ethnology*, p. xxxi.

[1] Some authorities give fourteen dialects of the Maya. Cf. the table in Bancroft, iii. 562, etc., and the statements in Garcia y Cubas, translated by Geo. F. Henderson as *The Republic of Mexico*. It is still spoken in the greatest purity about the Balize, as is commonly said; but Le Plongeon goes somewhat inland and says he found it "in all its pristine purity" in the neighborhood of Lake Peten. Le Plongeon, with that extravagance which has in the end deprived him of the sympathy and encouragement due to his noteworthy labors, says, "One third of this Maya tongue is pure Greek," following Brasseur in one of his vagaries, who thought he found in 15,000 Maya vocables at least 7,000 that bore a striking resemblance to the language of Homer.

[2] The bibliographies will add to this enumeration. The *Pinart Catalogue* (pp. 98–100) gives a partial list. Only some of the more important monographs upon features of the Maya language can be mentioned: Father Pedro Beltran de Santa Rosa's *Arte del idioma Maya* (Mexico, 1746) was so rare that Brasseur did not secure it, but Leclerc catalogues it (no. 2,280), as well as the reprint (Merida, 1859) edited by José D. Espinosa. There is a study of the Maya tongues included in a paper printed first by Carl Hermann Berendt in the *Journal of the Amer. Geog. Soc.* (viii. 132, for 1876), which was later issued separately as *Remarks on the centres of ancient civilization in Central America and their geographical distribution* (N. Y., 1876). It is accompanied by a map. (Cf. also his "Explorations in Central America" in the *Smithsonian Rept.*, 1867.) Brasseur included in his *Manuscrit Troano* (Paris, 1869–70), and later published separately, a *Dictionnaire, Grammaire et Chrestomathie de la langue Maya* (Paris, 1872); the dictionary containing 10,000 words, the grammar being a translation from Father Gabriel de Saint Bonaventure, while the chrestomathy was a gathering of specimens ancient and modern, of the language. Brasseur, in his mutable way, found in the first season of his studies the Greek, Latin, English, German, Scandinavian, not to name others, to have correspondences with the Maya, and ended in deriving them from that tongue as the primitive language. (Cf. Short, 476.) Dr. Brinton has a paper on *The Ancient Phonetic Alphabet of Yucatan* (N. Y., 1870), and he read at the Buffalo meeting (1886) of the Amer. Assoc. for the Advancement of Science a paper on the phonetic element of the graphic system of the Mayas, etc., which is printed in the *American Antiquarian*, viii. 347. In the introduction of his *Maya Chronicles* (Philad., 1882) he examines the language and literature of the Mayas. He refers to a "Disertacion sobre la historia de la lengua Maya o Yucateca" by Crescencio Carrello y Ancona in the *Revista de Merida*, 1870. Charencey has printed various special papers, like a *Fragment de Chrestomathie de la langue Maya antique* (Paris, 1875) from the *Revue de Philologie et d'Ethnographie*, and a paper read before the Copenhagen meeting of the Congrès des Américanistes (*Compte Rendu*, p. 379), "De la formation des mots en lengua Maya." Landa's *Relation* as published by Brasseur (Paris, 1864) is of course a leading source.

Of the Quiché branch of the Maya we know most from Brasseur's *Popul Vuh* and from his *Gramatica de la lengua Quiché* (Paris, 1862), in the appendix of which he printed the *Rabinal Achi*, a drama in the Quiché tongue. Father Ildefonso José Flores, a native of the country, was professor of the Cakchiquel language in the university of Guatemala in the last century, and published a *Arte de la lengua metropolitana del Reyno Cakchiquel* (Guatemala, 1753), which was unknown to later scholars, till Brasseur discovered a copy in 1856 (Leclerc, no. 2,270). The literature of the Cakchiquel dialect is examined in the introduction to Brinton's *Grammar of the Cakchiquel language*

The philology of the South American peoples has not been so well compassed as that of the northern continent. The classified bibliographies show the range of it under such heads as Ande (or Campa), Araucanians (Chilena), Arrawak, Aymara, Brazil (the principal work being F. P. von Martius's *Beiträge zur Ethnographie und Sprachenkunde Amerika's, zumal Brasiliens*, Leipzig, 1867, with a second part called *Glossaria linguarum brasiliensium*, Erlangen, 1863), Chama, Chibcha (or Muysca, Mosca), Cumanagota, Galibi, Goajira, Guarani, Kiriri (Kariri), Lule, Moxa, Paez, Quichua, Tehuelhet, Tonocote, Tupi, etc.

(Philad., 1884), edited for the American Philosophical Society. Cf. Brinton's little treatise *On the language and ethnologic position of the Xinca Indians of Guatemala* (Philadelphia, 1884); his *So-called Alaguilac language of Guatemala* in the *Proc. Am. Philosoph. Soc.*, 1887, p. 366; and Otto Stoll's *Zur Ethnographie der Republik Guatemala* (Zurich, 1884).

We owe to Brinton, also, a few discussions of the Nicaragua tongues, both in their Maya and Aztec relations. He has discussed the local dialect of this region in the introduction of *The Güegüence; a comedy ballet in the Nahuatl-Spanish dialect of Nicaragua* (Philadelphia, 1883), and in his *Notes on the Mangue, an extinct dialect formerly spoken in Nicaragua* (Philadelphia, 1886).

V.

BIBLIOGRAPHICAL NOTES ON THE MYTHS AND RELIGIONS OF AMERICA.

By the Editor.

THE earliest scholarly examination of the whole subject, which has been produced by an American author, is Daniel G. Brinton's *Myths of the New World, a treatise on the symbolism and mythology of the Red Race of America* (N. Y., 1868; 2d ed., 1876). It is a comparative study, "more for the thoughtful general reader than for the antiquary," as the author says. "The task," he adds, "bristles with difficulties. Carelessness, prepossessions, and ignorance have disfigured the subject with false colors and foreign additions without number" (p. 3). After describing the character of the written, graphic, or symbolic records, which the student of history has to deal with in tracing North American history back before the Conquest, he adds, while he deprives mythology of any historical value, that the myths, being kept fresh by repetition, were also nourished constantly by the manifestations of nature, which gave them birth. So while taking issue with those who find history buried in the myths, he warns us to remember that the American myths are not the reflections of history or heroes. In the treatment of his subject he considers the whole aboriginal people of America as a unit, with "its religion as the development of ideas common to all its members, and its myths as the garb thrown around those ideas by imaginations more or less fertile; but seeking everywhere to embody the same notions."[1] This unity of the American races is far from the opinion of other ethnologists.

Brinton gives a long bibliographical note on those who had written on the subject before him, in which he puts, as the first (1819) to take a philosophical survey, Dr. Samuel Farmer Jarvis in a *Discourse on the religion of the Indian tribes of North America*, printed in the *N. Y. Hist. Soc. Collections*, iii. (1821). Jarvis confined himself to the tribes north of Mexico, and considered their condition, as he found it, one of deterioration from something formerly higher. There had been, of course, before this, amassers of material, like the Jesuits in Canada, as preserved in their *Relations*,[2] sundry early French writers on the Indians,[3] the English agents of the Society for the Propagation of the Gospel in New England, and the Moravian missionaries in Pennsylvania and the Ohio country, to say nothing of the historians, like Loskiel (*Geschichte der Mission*, 1789), Vetromile (*Abnakis and their History*, New York, 1866), Cusick (*Six Nations*), not to mention local observers, like Col. Benjamin Hawkins, *Sketch of the Creek Country* (*Georgia Hist. Soc. Collections*, 1848, but written about 1800).

If the placing of Brinton's book as the earliest scholarly contribution is to be contested, it would be for E. G. Squier's *Serpent Symbol in America* (N. Y., 1851);[4] but the book is not broadly based, except so far as such comprehensiveness can be deduced from his tendency to consider all myths as having some force of nature for their motive, and that all are traceable to an instinct that makes the worship of fire or of the sun the centre of a system.[5] With this as the source of life, Squier allies the widespread phallic worship. In Bancroft's *Native Races* (iii. p. 501) there is a summary of what is known of this American worship of the

[1] Notwithstanding this commonness of origin, if such be the case, there is a striking truth in what Max Müller says: "The thoughts of primitive humanity were not only different from our thoughts, but different also from what we think their thoughts ought to have been."

[2] See Vol. IV. p. 295.

[3] Such are Sagard's *Histoire du Canada* (1636); Nicolas Perrot's *Mémoire sur les Mœurs, Coutumes et Religion des Sauvages*, involving his experience from 1665 to 1699; Lafitau's *Mœurs des Sauvages* (1724), and the like.

[4] Bancroft (iii. 136) says: "It does not appear, notwithstanding Mr. Squier's assertion to the contrary, that the serpent was actually worshipped either in Yucatan or Mexico." Cf. Brinton's *Myths*, ch. 4; Chas. S. Wake's *Serpent Worship* (London, 1888); and J. G. Bourke's *Snake-dance of the Moquis of Arizona; being a narrative of a journey from Santa Fé, New Mexico, to the villages of the Moqui Indians of Arizona, with a description of the manners and customs of this peculiar people, to which is added a brief dissertation upon serpent-worship in general, with an account of the tablet dance of the Pueblo of Santo Domingo, New Mexico, etc.* (London, 1884).

[5] Brinton (*Myths*, etc., 141) declares sun-worship, which some investigators have made the base of all primitive religions, to be but a "short and easy method with mythology," and that "no one key can open all the arcana of symbolism." He refers to D'Orbigny (*L'Homme Américain*), Müller (*Amer. Urreligionen*), and Squier (*Serpent Symbol*) as supporting the opposing view. We may find like supporters of the sun as a central idea in Schoolcraft, Tylor, Brasseur. Cf. Bancroft's *Native Races* (iii. 114) in opposition to Brinton.

generative power. Brinton doubts (*Myths*, etc., 149) if anything like phallic worship really existed, apart from a wholly unreligious surrender to appetite.

Another view which Squier maintains is, that above all this and pervading all America's religious views there was a sort of rudimentary monotheism.[1]

When we add to this enumeration the somewhat callow and wholly unsatisfactory contributions of Schoolcraft in the great work on the *Indian Tribes of the United States* (1851–59), which the U. S. government in a headlong way sanctioned, we have included nearly all that had been done by American authors in this field when Bancroft published the third volume of his *Native Races*. This work constitutes the best mass of material for the student — who must not confound mythology and religion — to work with, the subject being presented under the successive heads of the origin of myths and of the world, physical and animal myths, gods, supernatural beings, worship and the future state; but of course, like all Bancroft's volumes, it must be supplemented by special works pertaining to the more central and easterly parts of the United States, and to the regions south of Panama. The deficiency, however, is not so much as may be expected when we consider the universality of myths. "Unfortunately," says this author, "the philologic and mythologic material for such an exhaustive synthesis of the origin and relations of the American creeds as Cox has given to the world in the Aryan legends in his *Mythology of the Aryan Nations* (London, 1870) is yet far from complete."

In 1882 Brinton, after riper study, again recast his views of a leading feature of the subject in his *American hero-myths; a study in the native religions of the western continent* (Philad., 1882), in which he endeavored to present "in a critically correct light some of the fundamental conceptions in the native beliefs." His purpose was to counteract what he held to be an erroneous view in the common practice of considering "American hero-gods as if they had been chiefs of tribes at some undetermined epoch," and to show that myths of similar import, found among different peoples, were a "spontaneous production of the mind, and not a reminiscence of an historic event." He further adds as one of the impediments in the study that he does "not know of a single instance on this continent of a thorough and intelligent study of a native religion made by a Protestant missionary."[2] After an introductory chapter on the American myths, Brinton in this volume takes up successively the consideration of the hero-gods of the Algonquins and Iroquois, the Aztecs, Mayas, and the Quichuas of Peru. These myths of national heroes, civilizers, and teachers are, as Brinton says, the fundamental beliefs of a very large number of American tribes, and on their recognition and interpretation depends the correct understanding of most of their mythology and religious life, — and this means, in Brinton's view, that the stories connected with these heroes have no historic basis.[3]

The best known of the comprehensive studies by a European writer is J. G. Müller's *Geschichte der Amerikanischen Urreligionen* (Basle, 1855; again in 1867), in which he endeavors to work out the theory that at the south there is a worship of nature, with a sun-worship for a centre, contrasted at the north with fetichism and a dread of spirits, and these he considers the two fundamental divisions of the Indian worship. Bancroft finds him a chief dependence at times, but Brinton, charging him with quoting in some instances at second-hand, finds him of no authority whatever.

One of the most reputable of the German books on kindred subjects is the *Anthropologie der Naturvölker* (Leipzig, 1862–66) of Theodor Waitz. Brinton's view of it is that no more comprehensive, sound, and critical work on the American aborigines has been written; but he considers him astray on the religious phases, and that his views are neither new nor tenable when he endeavors to subject moral science to a realistic philosophy.[4]

[1] This monotheism is denied by Brinton (*Myths of the New World*, 52). "Of monotheism, either as displayed in the one personal definite God of the Semitic races, or in the dim pantheistic sense of the Brahmins, there was not a single instance on the American continent," — the Iroquois "Neu" and "Hawaneu," which, as Brinton says, have deceived Morgan and others, being but the French "Dieu" and "Le bon Dieu" rendered in Indian pronunciation (*Myths of the New World*, p. 53). The aborigines instituted, however, in two instances, the worship of an immaterial god, one among the Quichuas of Peru and another at Tezcuco (*Ibid.* p. 55).

Bandelier (*Archæol. Tour*, 185), examining the *Hist. de los Mexicanos por sus Pinturas* (*Anales del Museo*, ii. 86), Motolinía, Gómara, Sahagún, Tobar, and Durán, finds no trace of monotheism till we come to Acosta. Torquemada speaks of supreme *gods*; and Bandelier thinks that Ixtlilxochitl, in conveying the idea of a single god, evidently distorts and disfigures Torquemada.

Bancroft (iii. 198) accords honesty to Ixtlilxochitl's account of the religion of the Tezcucan ruler Nezahualcoyotl, as reaching the heights of Mexican monotheistic conception, because he thinks his descendants, if he had fabled, would never have ended his description with so pagan a statement as that which makes the Tezcucan recognize the sun as his father and the earth as his mother.

Max Müller tells us that we should distinguish between monotheism and henotheism, which is the temporary preeminence of one god over the host of gods, and which was as near monotheism as the American aborigines came.

[2] He also masses the evidence which shows, as he thinks, that "on Catholic missions has followed the debasement, and on Protestant missions the destruction, of the Indian race." *Amer. Hero-Myths*, pp. 206, 238.

[3] Unfortunately, Brinton enforces this view and others with a degree of confidence that does not help him to convince the cautious reader, as when he speaks of the opinions of those who disagree with him as "having served long enough as the last refuge of ignorance" (*Amer. Hero-Myths*, 145).

[4] The whole question of comparative mythology involves in its broad aspects the subject of American myths. The literature of this general kind is large, but reference may be made to Girard de Rialle's *La Mythologie Comparée* (Paris, 1878); for the idea of God, Dawson's *Fossil Men*, ch. 9 and 10; Lubbock's *Origin of Civilization*, ch. 4, 5, 6; J. P. Lesley's *Man's origin and destiny*, ch. 10; and for the geographical distribution of myths, Tylor's *Early Hist. of Mankind*, ch. 12; Max Müller's *Chips*, vol. ii.; and in a general way, Brinton's *Religious sentiment, its source and aim* (N. Y., 1876). Reference may also be made to Joly's *Man before Metals*, ch. 7; Dabry de Thiersant's *Origine des indiens* (Paris, 1883); and G. Brühl's *Culturvölker Alt-Amerikas* (Cincinnati, 1876–78), ch. 10 and 19.

In speaking of the scope of the comprehensive work of H. H. Bancroft we mentioned that beyond the larger part of the great Athapascan stock of the northern Indians his treatment did not extend. Such other general works as Brinton's *Myths of the New World*, the sections of his *American Hero-Myths* on the hero-gods of the Algonquins and Iroquois, and the not wholly satisfactory book of Ellen R. Emerson, *Indian myths; or, Legends, traditions, and symbols of the aborigines of America, compared with those of other countries, including Hindostan, Egypt, Persia, Assyria, and China* (Boston, 1884), with aid from such papers as Major J. W. Powell's "Philosophy of the North American Indians" in the *Journal of the Amer. Geographical Society* (vol. viii. p. 251, 1876), and his "Mythology of the North American Indians" in the *First Annual Rept. of the Bureau of Ethnology* (1881), and R. M. Dorman's *Origin of primitive superstition among the aborigines of America* (Philad., 1881), must suffice in a general way to cover those great ethnic stocks of the more easterly part of North America, which comprise the Iroquois, centred in New York, and surrounded by the Algonquins, west of whom were the Dacotas, and south of whom were the Creeks, Choctaws, and Chickasaws, sometimes classed together as Appalachians.[1]

The mythology of the Aztecs is the richest mine, and Bancroft in his third volume finds the larger part of his space given to the Mexican religion.

Brinton (*Amer. Hero Myths*, 73, 78), referring to the "Historia de los Méxicanos por sus Pinturas" of Ramirez de Fuen-leal, as printed in the *Anales del Museo Nacional* (ii. p. 86), says that in some respects it is to be considered the most valuable authority which we possess,[2] as taken directly from the sacred books of the Aztecs, and as explained by the most competent survivors of the Conquest.[3]

We must also look to Ixtlilxochitl and Sahagún as leading sources. From Sahagún we get the prayers which were addressed to the chief deity, of various names, but known best, perhaps, as Tezcatlipoca; and these invocations are translated for us in Bancroft (iii. 199, etc.), who supposes that, consciously or unconsciously, Sahagún has slipped into them a certain amount of "sophistication and adaptation to Christian ideas." From the lofty side of Tezcatlipoca's character, Bancroft (iii. ch. 7) passes to his meaner characteristics as the oppressor of Quetzalcoatl.

The most salient features of the mythology of the Aztecs arise from the long contest of Tezcatlipoca and Quetzalcoatl, the story of which modified the religion of their followers, and, as Chavero claims, greatly affected

Brinton (*Myths*, 210) tracks the Deluge myth among the Indians, and Bancroft gives many instances of it (*Native Races*, v., index). Brinton thinks a paper by Charencey, "Le Déluge d'après les traditions indiennes de l'Amérique du Nord," in the *Revue Américaine*, a help for its extracts, but complains of its uncritical spirit.

We find sufficient data of the aboriginal belief in the future life both in Bancroft's final chapter (vol. iii. part i.) and in Brinton's *Myths*, ch. 9. Brinton delivered an address on the "Journey of the soul," which is printed in the *Proceedings* (Jan., 1883) of the Numismatic and Antiquarian Society of Philadelphia.

[1] In studying the mythology of these tribes we must depend mainly on confined monographs. Mrs. E. A. Smith treats the myths of the Iroquois in the *Second Annual Rept. Bureau of Ethnology*. Charles Godfrey Leland has covered *The Algonquin legends of New England; or, myths and folk-lore of the Micmac, Passamaquoddy, and Penobscot tribes* (Boston, 1884). Brinton has a book on *The Lenâpé and their legends* (Philad., 1885); and one may refer to the *Life and Journals of David Brainard*. S. D. Peet has a paper on "The religious beliefs and traditions of the aborigines of North America" in the *Journal of the Victoria Institute* (London, 1888, vol. xxi. 229); one on "Animal worship and Sun worship in the east and west compared" in the *American Antiquarian*, Mar., 1888; and a paper on the religion of the moundbuilders in *Ibid.* vi. 393. The *Dahcotah, or life and legends of the Sioux around Fort Snelling* (N. Y., 1849) of Mrs. Mary Eastman has been a serviceable book. S. R. Riggs covers the mythology of the Dakotas in the *Amer. Antiquarian* (v. 147), and in this periodical will be found various studies concerning other tribes.

[2] Bandelier, *Archæol. Tour*, 185, calls it the earliest statement of the Nahua mythology.

[3] There is more or less of original importance on the Aztec myths in Alfredo Chavero's "La Piedra del Sol," likewise in the *Anales* (vol. i.). Cf. also the "Ritos Antiguos, sacrificios e idolatrias de los indios de la Nueva España," as printed in the *Coleccion de doc. ined. para la hist. de España* (iii. 300).

Bancroft (vol. iii. ch. 6–10), who is the best source for reference, gives also the best compassed survey of the entire field; but among writers in English he may be supplemented by Prescott (i. ch. 3, introd.); Helps in his *Spanish Conquest* (vol. ii.); Tylor's *Primitive Culture;* Albert Réville's *Lectures on the origin and growth of religion as illustrated by the native religions of Mexico and Peru*, translated by P. H. Wicksteed (London, 1884, being the Hibbert lectures for 1884); on the analogies of the Mexican belief, a condensed statement in Short's *No. America of Antiq.*, 459; a popular paper in *The Galaxy*, May, 1876. Bandelier intended a fourth paper to be added to the three printed in the *Peabody Mus. Repts.* (vol. ii.), namely, one on "The Creeds and Beliefs of the Ancient Mexicans," which has never, I think, been printed.

Among the French, we may refer to Ternaux-Compans' *Essai sur la théogonie Méxicaine* (Paris, 1840) and the works of Brasseur. Klemm's *Cultur-Geschichte* and Müller's *Urreligionen* will mainly cover the German views. Of the Mexican writers, it may be worth while to name J. M. Melgar's *Examen comparativa entre los signos simbolicos de las Teogonias y Cosmogonias antiguas y los que existen en los manuscritos Méxicanos* (Vera Cruz, 1872).

The readiest description of their priesthood and festivals will be found in Bancroft (ii. 201, 303, with references). Tenochtitlan is said to have had 2,000 sacred buildings, and Torquemada says there were 80,000 throughout Mexico; while Clavigero says that a million priests attended upon them. Bancroft (iii. ch. 10) describes this service. There is a chance in all this of much exaggeration.

The history of human sacrifice as a part of this service is the subject of disagreement among the earlier as well as with the later writers. Bancroft (iii. 413, 442) gives some leading references. Cf. Prescott (i. 77) and Nadaillac (p. 296). Las Casas in his general defence of the natives places the number of sacrifices very low. Zumárraga says there were 20,000 a year. The Aztecs, if not originating the practice, as is disputed by some, certainly made much use of it.

their history.[1] This struggle, according as the interpreters incline, stands for some historic or physical rivalry, or for one between St. Thomas and the heathen;[2] but Brinton explains it on his general principles as one between the powers of Light and Darkness (*Am. Hero Myths*, 65).

The main original sources on the character and career of Quetzalcoatl are Motolinía, Mendieta, Sahagún, Ixtlilxochitl, and Torquemada, and these are all summarized in Bancroft (iii. ch. 7).

It has been a question with later writers whether there is a foundation of history in the legend or myth of Quetzalcoatl. Brinton (*Myths of the New World*, 180) has perhaps only a few to agree with him when he calls that hero-god a "pure creature of the fancy, and all his alleged history nothing but a myth," and he thinks some confusion has arisen from the priests of Quetzalcoatl being called by his name.

Bandelier (*Archæol. Tour*) takes issue with Brinton in deeming Quetzalcoatl on the whole an historical person, whom Ixtlilxochitl connects with the pre-Toltec tribes of Olmeca and Xicalanca, and whom Torquemada says came in while the Toltecs occupied the country. Bandelier thinks it safe to say that Quetzalcoatl began his career in the present state of Hidalgo as a leader of a migration moving southward, with a principal sojourn at Cholula, introducing arts and a purer worship. This is substantially the view taken by J. G. Müller, Prescott, and Wuttke.

QUETZALCOATL.*

Bancroft (iii. 273) finds the *Geschichte der Amer. Urreligionen* (p. 577) of Müller to present a more thorough examination of the Quetzalcoatl myth than any other,[3] but since then it has been studied at length by Bandelier in his *Archæological Tour* (p. 170 etc.), and by Brinton in his *Amer. Hero Myths*, ch. 3.[4]

What Tylor (*Primitive Culture*, ii. 279) calls "the inexplicable compound, parthenogenetic deity, the hideous, gory Huitzilopochtli" (Huitziloputzli, Vitziliputzli), the god of war,[5] the protector of the Mexicans, was considered by Boturini (*Idea*, p. 60) as a deified ancient war-chief. Bancroft in his narrative (iii. 289, 294;

[1] *Anales del Museo Nacional*, ii. 247; Bancroft, iii. 240, 248.

[2] Bandelier thinks Durán the earliest to connect St. Thomas with Quetzalcoatl. Cf. Bancroft, iii. 456.

[3] Müller agrees with Ixtlilxochitl that Quetzalcoatl and Huemac were one and the same, and that Ternaux erred in supposing them respectively Olmec and Toltec deities. Cf. Brasseur's *Palenqué*, 40, 66. Cf. D. Daly on "Quetzalcoatl, the Mexican Messiah" in *Gentleman's Mag.*, n. s., xli. 236.

[4] For the later views in general see Clavigero, Tylor, Brasseur (*Nations Civil.*, i. 253), Prescott (i. 62), Bancroft (iii. 248, 263; v. 24, 200, 255, 257), and Short (267, 274).

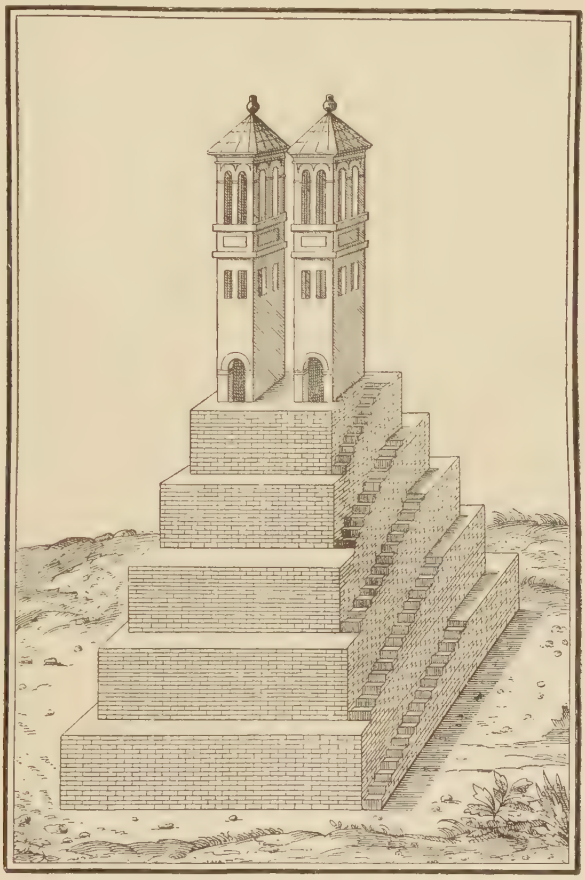
[5] The god Paynal was a sort of deputy war-god. See H. H. Bancroft's *Native Races*.

* After a drawing in Cumplido's Mexican ed. of Prescott's *Mexico*, vol. iii. Images of him are everywhere (Nadaillac, 273–74). Cf. Eng. transl. of Charnay, p. 87.

iv. 559) quotes the accounts in Sahagún and Torquemada, and (pp. 300–322) summarizes J. G. Müller's monograph on this god, which he published in 1847, and which he enlarged when including it in his *Urreligionen.*

Acosta's description of the Temple of Huitzilopochtli is translated in Bancroft (iii. 292). Solis follows Acosta, while Herrera copies Gomara, who was not, as Solis contends, so well informed.

As regards the Votan myth of Chiapas, Brinton tells us something in his *American Hero Myths* (212, with references, 215); but the prime source is the Tzendal manuscript used by Cabrera in his *Teatro Critico-Americano.*[1] No complete translation has been made, and the abstracts are unsatisfactory. Bancroft aids us in this study of worship in Chiapas (iii. 458), as also in that of Oajaca (iii. 448), Michoacan[2] (iii. 445), and Jalisco (iii. 447).



THE MEXICAN TEMPLE.*

"The religion of the Mayas," says Bancroft (iii. ch. 11), "was fundamentally the same as that of the Nahuas, though it differed somewhat in outward forms. Most of the gods were deified heroes. . . . Occasionally we find very distinct traces of an older sun-worship which has succumbed to later forms, introduced according to vague tradition from Anahuac." The view of Tylor (*Anahuac*, 191) is that the "civilization," and consequently the religions, of Mexico and Central America were originally independent, but that they came much into contact, and thus modified one another to no small extent."

[1] Cf. references in *Peabody Mus. Rept.*, ii. 571; Short, p. 206. a manuscript in the library of Congress, of which there is a copy in Madrid, which is printed in the *Coleccion de doc. ined. para la hist. de España*, liii.

[2] Cf. *Relacion de las ceremonias y Ritos de Michoacan,*

* Reduced from a drawing in Icazbalceta's *Coleccion de Documentos*, i. p. 384. There were two usual forms of the Mexican temple: one of this type, and the other with two niche-like pavilions on the top. Cf. drawings in Clavigero (Casena, 1780), ii. 26, 34; Eng. tr. by Cullen, i. 262, 373; Stevens's Eng. tr. Herrera (London, 1740, vol. ii.).

Modern scholars are not by any means so much inclined as Las Casas and the other Catholic fathers were to recognize the dogma of the Trinity and other Christian notions, which have been thought to be traceable in what the Maya people in their aboriginal condition held for faith.

The most popular of their deified heroes were Zamná and Cukulcan, not unlikely the same personage under two names, and quite likely both are correspondences of Quetzalcoatl. We can find various views and alternatives on this point among the elder and recent writers. The belief in community of attributes derives its strongest aid from the alleged disappearance of Quetzalcoatl in Goazacoalco just at the epoch when Cukulcan appeared in Yucatan. The centres of Maya worship were at Izamal, Chichen-Itza, and the island of Cozumel.

The hero-gods of the Mayas is the topic of Brinton's fourth chapter in his *American Hero Myths*, with views of their historical relations of course at variance with those of Bancroft. As respects the material, he says that "most unfortunately very meagre sources of information are open to us. Only fragments of their legends and hints of their history have been saved, almost by accident, from the general wreck of their civili-

THE TEMPLE OF MEXICO.*

zation." The heroes are Itzamná, the leader of the first immigration from the east, through the ocean pathways; and Kukulcan, the conductor of the second from the west. For the first cycle of myths Brinton refers to Landa's *Relation*, Cogolludo's *Yucatan*, Las Casas's *Historia Apologética*, involving the reports of the missionary Francisco Hernandez, and to Hieronimo Roman's *De la Republica de las Indias Occidentales*.

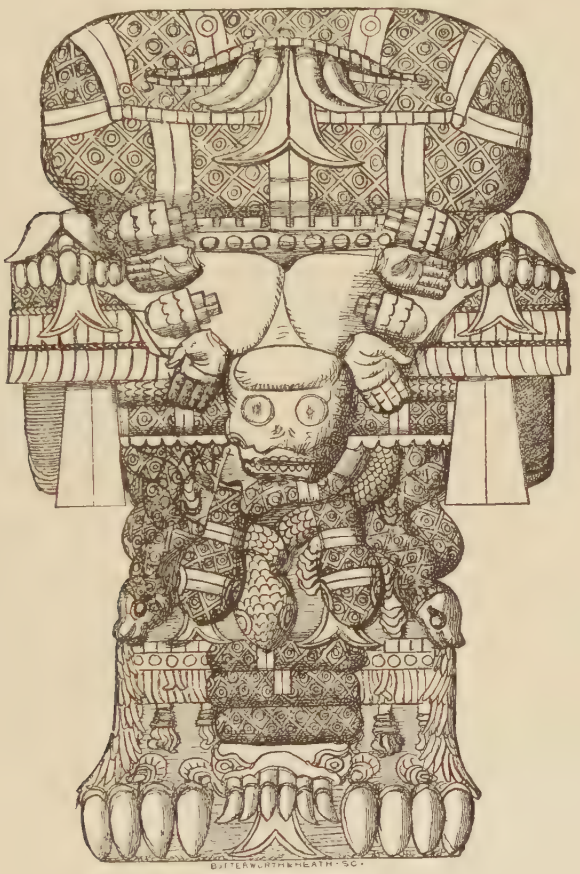
The Kukulcan legends are considered by Brinton to be later in date and less natural in character, and Hernandez's Report to Las Casas is the first record of them. Brinton's theory of the myths does not allow him to identify the Quetzalcoatl and Kukulcan hero-gods as one and the same, nor to show that the Aztec and Maya civilizations had more correspondence than occasional intercourse would produce; but he thinks the similarity of the statue of "Chac Mool," unearthed by Le Plongeon at Chichen-Itza, to another found at Tlaxcala compels us to believe that some positive connection did exist in parts of the country (*Anales del Museo Nacional*, i. 270).[1] "The Nahua impress," says Bancroft (iii. 490), "noticeable in the languages and customs of Nicaragua, is still more strongly marked in the mythology. Instead of obliterating the older forms

[1] For further modern treatment see Schultz-Sellack's "Die Amerikanischen Götter der vier Weltgegenden und ihre Tempel in Palenque" in *Zeitschrift für Ethnologie*, xi. (1879); Brasseur's *Landa*, p. lx; Ancona's *Yucatan* (i. ch. 10); Powell's *First Report Bureau of Ethnology*; for sacrifices, Nadaillac (p. 266); and for festivals and priestly service, Bancroft (ii. 689). For Yucatan folk-lore, see Brinton in *Folk-lore Journal* (vol. i. for 1883).

* After plate (reduced) in Herrera.

of worship, as it seems to have done in the northern parts of Central America, it has here and there passed by many of the distinct beliefs held by different tribes, and blended with the chief elements of a system which is traced to the Muyscas in South America."

The main source of the Quiché myths and worship is the *Popul Vuh*, but Bancroft (iii. 474), who follows it, finds it difficult to make anything comprehensible out of its confusion of statement. But prominent among the deities seem to stand Tepeu or Gucumatz, whom it is the fashion to make the same with Quetzalcoatl, and Hurakan or Tohil, who indeed stands on a plane above Quetzalcoatl. Brinton (*Myths*, 156), on the contrary, connects Hurakan with Tlaloc, and seems to identify Tohil with Quetzalcoatl. Bancroft (iii. 477) says that tradition, name, and attributes connect Tohil and Hurakan, and identify them with Tlaloc.



TEOYAOMIQUI.*

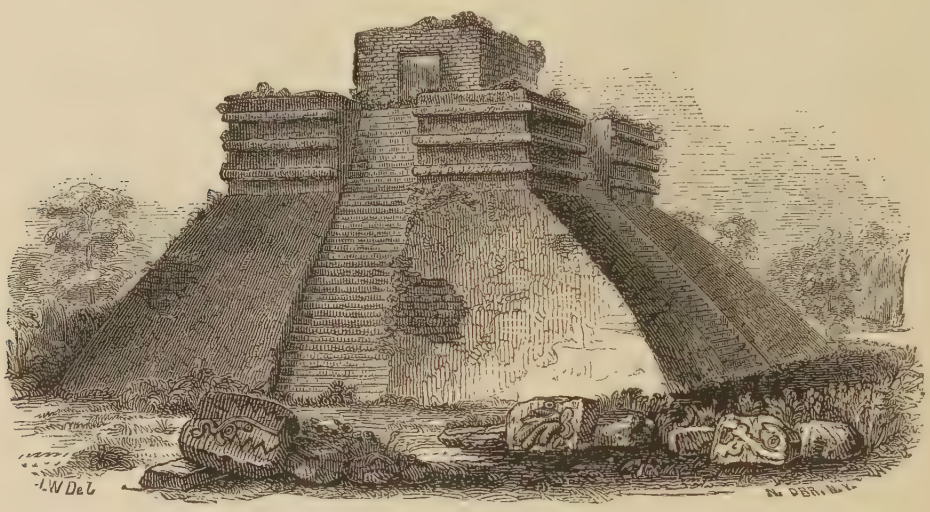
* The idol dug up in the Plaza in Mexico is here presented, after a cut, following Nebel, in Tylor's *Anahuac*, showing the Mexican goddess of war, or death. Cf. cut in *American Antiquarian*, Jan., 1883; Powell's *First Rept. Bur. Ethn.*, 232: Bancroft, iv. 512, 513, giving the front after Nebel, and the other views after Léon y Gama. Bandelier (*Arch. Tour*, pl. v) gives a photograph of it as it stands in the courtyard of the Museo Nacional.

Gallatin (*Am. Ethn. Soc. Trans.*, i. 338) describes Teoyaomiqui as the proper companion of Huitzilopochtli: "The symbols of her attributes are found in the upper part of the statue; but those from the waist downwards relate to other deities connected with her or with Huitzilopochtli." Tylor (*Anahuac*, 222) says: "The antiquaries think that the figures in it stand for different personages, and that it is three gods: Huitzilopochtli the god of war, Teoyaomiqui his wife, and Mictlantecutli the god of hell." Léon y Gama calls the statue Teoyaomiqui, but Bandelier, *Archæol. Tour*, 67, thinks its proper name is rather Huitzilopochtli. Léon y Gama's description is summarized in Bancroft, iii. 399, who cites also what Humboldt (*Vues*, etc., ii. 153, and his pl. xxix) says. Bancroft (iii. 397) speaks of it as "a huge compound statue, representing various deities, the most prominent being a certain Teoyaomiqui, who is almost identical with, or at least a connecting link between, the mother goddess" and Mictlantecutli, the god of Mictlan, or Hades. Cf. references in Bancroft, iv. 515.

Brinton's *Names of the gods in the Kiché myths, a monograph on Central American mythology* (Philad. Am. Philos. Soc., 1881), is a special study of a part of the subject.

Brinton (*Myths*, etc., 184) considers the best authorities on the mythology of the Muyscas of the Bogota region to be Piedrahita's *Historia de las Conquistas del Nuevo Reyno de Granada* (1668, followed by Humboldt in his *Vues*) and Simm's *Noticias historiales de las Conquistas de Tierra Firme en el Nuevo Reyno de Granada*, given in Kingsborough, vol. viii.

The mythology of the Quichuas in Peru makes the staple of chap. 5 of Brinton's *Amer. Hero-Myths.* Here the corresponding hero-god was Viracocha. Brinton depends mainly on the *Relacion Anónyma de los Costumbres Antiguos de los Naturales del Piru, 1615* (Madrid, 1879); on Christoval de Molina's account of the fables and religious customs of the Incas, as translated by C. R. Markham in the Hakluyt Society



ANCIENT TEOCALLI, OAXACA, MEXICO.*

volume, *Narratives of the Rites and Laws of the Yncas* (London, 1873); on the *Comentarios reales* of Garcilasso de la Vega; on the report made to the viceroy Francisco de Toledo, in 1571, of the responses to inquiries made in different parts of the country as to the old beliefs which appear in the "Informacion de las idolatras de los Incas é Indios," printed in the *Coleccion de documentos ineditos del archivo de Indias*, xxi. 198; and in the *Relacion de Antigüedades deste Reyno del Piru*, by Juan de Santa Cruz Pachicuti.

Brinton dissents to D'Orbigny's view in his *L'homme Américaine*, that the Quichua religion is mainly borrowed from the older mythology of the Aymaras.

Francisco de Avila's "Errors and False Gods of the Indians of Huarochiri" (1608), edited by Markham for the Hakluyt Society in the volume called *Narratives of the Rites and Laws of the Yncas*, is a treatment of a part of the subject.

Adolf Bastian's *Ein Jahr auf Reisen — Kreuzfahrten zum Sammelbehuf aus Transatlantischen Feldern der Ethnologie*, being the first volume of his *Die Culturländer des Alten America* (Berlin, 1878), has a section "Aus Religion und Sitte des Alten Peru."

* After a cut in Squier's *Serpent Symbol*, p. 78.

VI.

ARCHÆOLOGICAL MUSEUMS AND PERIODICALS.

By the Editor.

THE oldest of existing American societies dealing with the scientific aspects of knowledge is the American Philosophical Society of Philadelphia, whose *Transactions* began in 1769, and made six volumes to 1809. A second series was begun in 1818.[1] What are called the *Transactions of the Historical and Literary Committee* make two volumes (1819, 1838), the first of which contains contributions by Heckewelder and P. S. Duponceau on the history and linguistics of the Lenni Lenape. Its *Proceedings* began in 1838. The American Academy of Arts and Sciences was instituted at Boston in 1780, a part of its object being "to promote and encourage the knowledge of the antiquities of America,"[2] and its series of *Memoirs* began in 1783,[3] and its *Proceedings* in 1846. These societies have only, as a rule, incidentally, and not often till of late years, illustrated in their publications the antiquities of the new world; but the American Antiquarian Society was founded in 1812 at Worcester, Mass., by Isaiah Thomas, with the express purpose of elucidating this department of American history. It began the *Archæologia Americana* in 1820, and some of the volumes are still valuable, though they chiefly stand for the early development by Atwater, Gallatin, and others of study in this direction. In the first volume is an account of the origin and design of the society, and this is also set forth in the memoir of Thomas prefixed to its reprint of his *History of Printing in America*, which is a part of the series. The *Proceedings* of the society were begun in 1849, and they have contained some valuable papers on Central American subjects. The Boston Society of Natural History[4] published the *Boston Journal of Natural History* from 1834 to 1863, and in 1866 began its *Memoirs*. Col. Whittlesey gave in its first volume a paper on the weapons and military character of the race of the mounds, and subsequent volumes have had other papers of an archæological nature; but they have formed a small part of its contributions. Its *Proceedings* have of late years contained some of the best studies of palæolithic man. The American Ethnological Society, founded by Gallatin (New York), began its exclusive work in a series of *Transactions* (1845–53, vols. i., ii., and one number of vol. iii.), but it was not of long continuance, though it embraced among its contributors the conspicuous names of Gallatin, Schoolcraft, Catherwood, Squier, Rafn, S. G. Morton, J. R. Bartlett, and others. Its *Bulletin* was not continued beyond a single volume (1860–61).[5] The society was suspended in 1871.

The American Association for the Advancement of Science began its publications with the *Proceedings* of its Philadelphia meeting in 1848. Questions of archæology formed, however, but a small portion of its inquiries[6] till the formation of a section on Anthropology a few years ago.

The American Geographical Society has published a *Bulletin* (1852–56); *Journal* (or *Transactions*) (1859), etc., and *Proceedings* (1862–64). Some of the papers have been of archæological interest.

[1] *First series:* vol. iv., W. Sargent on articles from an old grave at Cincinnati, exhumed in 1794; vol. v., G. Turner on the same; vol. vi., W. Dunbar on the Indian sign language; J. Madison on remains of fortifications in the west; B. S. Barton on affinities of Indian words. *New series:* vol. i., H. H. Brackenridge on Indian populations and tumuli; C. W. Short on an Indian fort near Lexington, Ky.; vol. iii., D. Zeisberger on a Delaware grammar; vol. iv., J. Heckewelder on Delaware names, etc.

[2] It celebrated its centennial in 1880, when an impromptu address was delivered by R. C. Winthrop, which is printed by this society, and is also contained, with a statement of the occasion of it, in his *Speeches and Addresses*, 1878–1886. For a record of the interest in archæological studies about 1790, see *Reports* of the American Philosophical Society, xxii. no. 119.

[3] *First series:* vol. i., S. H. Parsons on discoveries in the western country; vol. iii., E. A. Kendall and J. Davis on an examination of the much controverted inscription of the so-called Dighton Rock; E. Stiles on an Indian idol. *New series:* vol. i., Rasle's Abenaki dictionary; vol. v., W. Sargent's plan of the Marietta mounds, etc.

[4] This society published the original edition of S. G. Morton's *Inquiry into the distinctive characteristics of the aboriginal race of America* (2d ed., Philadelphia, 1844), which glances at their moral and intellectual character, their habits of interment, their maritime enterprise, and their physical condition.

[5] Field's *Ind. Bibliog.*, no. 1564.

[6] Vol. ii., S. S. Haldeman on linguistic ethnology; vol. iii., J. C. Nott and L. Agassiz on the unity of the human race; vol. v., Col. Whittlesey on ancient human remains in Ohio; vol. vi., J. L. Leconte on the California Indians; vol. xi., Whittlesey on ancient mining at Lake Superior; Morgan on Iroquois laws of descent; D. Wilson on a uniform type of the American crania; vol. xiii., Morgan on the bestowing of Indian names; vol. xvii., Whittlesey on the antiquity of man in America; W. De Haas on the archæology of the Mississippi Valley; W. H. Dall on the Alaska tribes; vol. xix., Dall on the Eskimo tongue, etc.

The Anthropological Institute of New York printed its transactions in a *Journal* (one vol. only, 1872–73).

The Archæological Institute of America was founded in Boston in 1879, and has given the larger part of its interest to classical archæology. The first report of its executive committee said respecting the field in the new world: "The study of American archæology relates, indeed, to the monuments of a race that never attained to a high degree of civilization, and that has left no trustworthy records of continuous history. . . . From what it was and what it did, nothing is to be learned that has any direct bearing on the progress of civilization. Such interest as attaches to it is that which it possesses in common with other early and undeveloped races of mankind." Appended to this report was Lewis H. Morgan's "Houses of the American Aborigines, with suggestions for the exploration of the ruins in New Mexico," etc., — advancing his well-known views of the communal origin of the southern ruins. Under the auspices of the Institute, Mr. A. F. Bandelier, a disciple of Morgan, was sent to New Mexico for the study of the Pueblos, and his experiences are described in the second *Report* of the Institute. In their third *Report* (1882) the committee of the Institute say: "The vast work of American archæology and anthropology is only begun. . . . Other nations, with more or less of success, are trying to do our work on our soil. It is time that Americans bestir themselves in earnest upon a field which it would be a shame to abandon to the foreigner." Still under the pay of the Institute, Mr. Bandelier, in 1881, devoted his studies to the remains at Mexico, Cholula, Mitla, and the ancient life of those regions. At the same time, Aymé, then American consul at Merida, was commissioned to explore certain regions of Yucatan, but the results were not fortunate.

The Institute began in 1881 the publication of an *American Series* of its *Papers*, the first number of which embodied Bandelier's studies of the Pueblos, and the second covered his Mexican researches. In 1885 the *American Journal of Archæology* was started at Baltimore as the official organ of the Institute, and occasional papers on American subjects have been given in its pages. The editors were called upon to define more particularly their relations to archæology in America in the number for Sept., 1888. In this they say: "The archæology of America is busied with the life and work of a race or races of men in an inchoate, rudimentary, and unformed condition, who never raised themselves, even at their highest point, as in Mexico and Peru, above a low stage of civilization, and never showed the capacity of steadily progressive development. . . . These facts limit and lower the interest which attaches . . . to crude and imperfect human life. . . . A comparison of their modes of life and thought with those of other races in a similar stage of development in other parts of the world, in ancient and modern times, is full of interest as exhibiting the close similarity of primitive man in all regions, resulting from the sameness of his first needs, in his early struggle for existence." The editors rest their reasons for giving prominence to classical archæology upon the necessity of affording by such complemental studies the means of comparison in archæological results, which can but advance to a higher plane the methods and inductions of the prehistoric archæology of America.

The American Folk-Lore Society was founded in Jan., 1888, and *The Journal of American Folk-Lore* was immediately begun. A large share of its papers is likely to cover the popular tales of the American aborigines.

The Anthropological Society of Washington is favorably situated to avail itself of the museums and apparatus of the American government, and members of the Geological Survey and Ethnological Bureau have been among the chief contributors to its *Transactions*,[1] which in January, 1888, were merged in a more general publication, *The American Anthropologist*. A National Geographic Society was organized in Washington in 1888.

There are numerous local societies throughout the United States whose purpose, more or less, is to cover questions of archæological import. Those that existed prior to 1876 are enumerated in Scudder's *Catalogue of Scientific Serials;* but it was not easy always to draw the line between historical associations and those verging upon archæological methods.[2]

The oldest of the scientific periodicals in the United States to devote space to questions of anthropology is Silliman's *American Journal of Science and Arts* (1818, etc.). The *American Naturalist*, founded in 1867, also entered the field of archæology and anthropology. The same may be said in some degree of the *Popular*

[1] *Abstracts of the Transactions prepared by J. W. Powell* (Washington, 1879, etc.).

[2] The student will find some general help, at least, from the publications of such as these: the Peabody Academy of Science (Salem, Mass.), *Memoirs*, 1869, etc.; Essex Institute (Salem, Mass.), *Bulletin*, 1869, and *Proceedings*, 1848, etc.; Connecticut Academy of Arts and Sciences, *Memoirs*, 1810–16; *Transactions*, 1866, etc.; the Lyceum of Natural History, become in 1876 the New York Academy of Sciences, *Annals*, 1823, etc.; *Proceedings*, 1870, etc.; *Transactions;* the Numismatic and Antiquarian Society of Philadelphia, *Proceedings;* Wyoming Historical and Geological Society, *Proceedings and Collections* (Wilkesbarre, Pa., 1884, etc.); the Cincinnati Society of Natural History, *Journal* and *Proceedings*, 1876; Indianapolis Academy of Sciences, *Transactions*, 1870, etc.; Wisconsin Academy of Sciences, Arts and Letters, *Bulletin*, 1870, and *Transactions*, 1870; Davenport (Iowa) Academy of Science, *Proceedings*, 1867; St. Louis Academy of Science, *Transactions*, 1856; Kansas Academy of Science, *Transactions*, 1872; California Academy of Sciences, *Proceedings*, 1854, etc., and *Memoirs*, 1868, etc.; Geographical Society of the Pacific, its official organ *Kosmos*, — not to name others.

In British America we may refer to the Natural History Society of Montreal, publishing *The Canadian Naturalist*, 1857, etc.; the Canadian Institute, *Proceedings;* the Royal Society of Canada, *Proceedings;* the Nova Scotia Institute of Natural Science, *Proceedings and Transactions*, 1867, — not to mention others; and among periodicals the *Canadian Monthly*, the *Canadian Antiquarian*, and the *Canadian Journal*.

Science Monthly (1877, etc.), *Science* (1883), and the *Kansas City Review*. The chief repository of such contributions, however, since 1878, has been *The American Antiquarian* (Chicago), edited by Stephen D. Peet. Its papers are, unluckily, of very uneven value.[1]

The best organized work has been done in the United States by the Peabody Museum of American Archæology and Ethnology, in Cambridge, Mass., and by certain departments of the Federal government at Washington.

The Peabody Museum resulted from a gift of George Peabody, an American banker living in London, who instituted it in 1866 as a part of Harvard University.[2] It was fortunate in its first curator, Dr. Jeffries Wyman, who brought unusual powers of comprehensive scrutiny to its work.[3] He died in 1874, and was succeeded by one of his and of Agassiz's pupils, Frederick W. Putnam, who was also placed in the chair of archæology in the university in 1886. The *Reports*, now twenty-two in number, and the new series of *Special Papers* are among the best records of progress in archæological science.

The creation of the Smithsonian Institution in 1846, under the bequest of an Englishman, James Smithson, and the devotion of a sum of about $31,000 a year at that time arising from that gift, first put the government of the United States in a position "to increase and diffuse knowledge among men."[4]

The second *Report* of the Regents in 1848 contains approvals of a manuscript by E. G. Squier and E. H. Davis, which had been offered to the Institution for publication, and which had been commended by Albert Gallatin, Edward Robinson, John Russell Bartlett, W. W. Turner, S. G. Morton, and George P. Marsh. Thus an important archæological treatise, *The Ancient Monuments of the Mississippi Valley, comprising the results of extensive original surveys and explorations* (Washington, 1848), became the first of the *Smithsonian Contributions to Knowledge*. The subsequent volumes of the series have contained other important treatises in similar fields. Foremost among them may be named those of Squier on the *Aboriginal Monuments of New York* (vol. ii., 1851); Col. Whittlesey on *The Ancient Works in Ohio* (vol. iii., 1852); S. R. Riggs' *Dakota Grammar and Dictionary* (vol. iv., 1852); I. A. Lapham's *Antiquities of Wisconsin* (vol. vii., 1855); S. F. Haven's *Archæology of the United States* (vol. viii., 1856); Brantz Mayer's *Mexican History and Archæology* (vol. ix., 1857); Whittlesey on *Ancient Mining on Lake Superior* (vol. xiii., 1863); Morgan's *Systems of Consanguinity of the human family* (vol. xvii., 1871); — not to name lesser papers. To supplement this quarto series, another in octavo was begun in 1862, called *Miscellaneous Collections;* and in this form there have appeared J. M. Stanley's *Catalogue of portraits of No. Amer. Indians* (vol. ii., 1862); a *Catalogue of photographic portraits of the No. Amer. Indians* (vol. xiv., 1878).

Of much more interest to the anthropologist has been the series of *Annual Reports* with their appended papers, — such as Squier on *The Antiquities of Nicaragua* (1851); W. W. Turner on *Indian Philology* (1852); S. S. Lyon on *Antiquities from Kentucky* (1858), and many others.

The sections of correspondence and minor papers in these reports soon began to include communications about the development of archæological research in various localities. They began to be more orderly arranged under the sub-heading of Ethnology in the *Report* for 1867, and this heading was changed to Anthropology in the *Report* for 1879. Charles Rau (d. 1887) had been a leading contributor in this department, and no. 440 of the Smithsonian publications was made up of his *Articles on Anthropological Subjects, contributed from 1863 to 1877* (Washington, 1882). No. 421 is Geo. H. Boehmer's *Index to Anthropological Articles in the publications of the Smithsonian Institution* (Washington, 1881). Among the later papers those of O. T. Mason of the Anthropological Department of the National Museum are conspicuous.

The last series is the *Reports of the Bureau of Ethnology*, placed by Congress in the charge of the Smithsonian. The *Reports of the American Historical Association* will soon be begun under the same auspices.

Major J. W. Powell, the director of the Bureau of Ethnology, said that its purpose was "to organize anthropologic research in America."[5] It published its first report in 1881, and this and the later reports have had for contents, beside the summary of work constituting the formal report, the following papers: —

[1] The tendency of general periodicals to questions of this kind is manifest by the references in *Poole's Index*, under such heads as American Antiquities, Anthropology, Archæology, Caves and Cave-dwellers, Ethnology, Lake Dwellings, Man, Mounds and Moundbuilders, Prehistoric Races, etc.

[2] The history of its incipiency and progress can be gathered from the *Reports* of the Museum, with summaries in those numbered i., xi. and xix.

[3] Cf. Waldo Higginson's *Memorials of the Class of 1833, Harvard College*, p. 60, and the contemporary tributes from eminent associates noted in *Poole's Index*, p. 1434.

[4] The documentary history, by W. J. Rhees, of the Smithsonian Institution, forms vol. xvii. of its *Miscellaneous Collections*. Cf. J. Henry on its organization in the *Proceedings* of the Amer. Asso. for the Adv. of Science, vol. i. A *Catalogue of the publications of the S. I. with an alphabetical index of articles*, by William J. Rhees (Washington, 1882), constitutes no. 478 of its series.

The early management of the Smithsonian decided that the "knowledge" of its founder meant science, and from the start gave not a little attention to archæology as a science. When the Bureau of Ethnology became a part of the Institution, and its *Reports* included papers necessarily historical as well as archæological, the way was prepared for a broader meaning to the term "knowledge," and as a significant recognition of the allied field of research the present government of the Smithsonian gave hearty concurrence to the act of Congress which in Dec., 1888, made also the American Historical Association, which had existed without incorporation since 1884, a section of the Smithsonian Institution.

[5] Its mound explorations have been conducted by Cyrus Thomas; those among the Pueblos of the southwest by James Stevenson (d. 1888); while Major Powell himself has controlled personally the body of searchers in the linguistic fields (*American Antiquarian*, viii. 32). It would seem that its profession "to organize anthropological re-

Vol. i.: J. W. Powell. The evolution of language. — Sketch of the mythology of the North American Indians. — Wyandot government. — On limitations to the use of some anthropologic data. — H. C. Yarrow. A further contribution to the study of mortuary customs among the North American Indians. — E. S. Holden. Studies in Central American picture-writing. — C. C. Royce. Cessions of land by Indian tribes to the United States: illustrated by those in Indiana. — G. Mallery. Sign language among North American Indians compared with that among other peoples and deaf-mutes. — J. C. Pilling. Catalogue of linguistic manuscripts in the library. — Illustration of the method of recording Indian languages. From the manuscripts of J. O. Dorsey, A. S. Gatschet, and S. R. Riggs.

Vol. ii.: F. H. Cushing. Zuñi fetiches. — *Mrs.* E. A. Smith. Myths of the Iroquois. — H. W. Henshaw. Animal carvings from mounds of the Mississippi Valley. — W. Matthews. Navajo silversmiths. — W. H. Holmes. Art in shell of the ancient Americans. — J. Stevenson. Illustrated catalogue of the collections obtained from the Indians of New Mexico and Arizona in 1879; — Illustrated catalogue of the collections obtained from the Indians of New Mexico in 1880.

Vol. iii.: Cyrus Thomas. Notes on certain Maya and Mexican manuscripts. — W. (C.) H. Dall. On masks, labrets, and certain aboriginal customs, with an inquiry into the bearing of their geographical distribution. — J. O. Dorsey. Omaha sociology. — Washington Matthews. Navajo weavers. — W. H. Holmes. Prehistoric textile fabrics of the United States, derived from impressions on pottery; — Illustrated catalogue of a portion of the collections made by the Bureau of Ethnology during the field season of 1881. — James Stevenson. Illustrated catalogue of the collections obtained from the Pueblos of Zuñi, New Mexico, and Wolpi, Arizona, in 1881.

Vol. iv.: Garrick Mallery. Pictographs of the North American Indians. — W. H. Holmes. Pottery of the ancient Pueblos; — Ancient pottery of the Mississippi Valley; — Origin and development of form and ornament in ceramic art. — F. H. Cushing. A study of Pueblo pottery as illustrative of Zuñi culture growth.

Vol. v.: Cyrus Thomas. Burial mounds of the northern sections of the United States. — C. C. Royce. The Cherokee nation of Indians. — Washington Matthews. The Mountain Chant: a Navajo ceremony. — Clay MacCauley. The Seminole Indians of Florida. — *Mrs.* Tilly E. Stevenson. The religious life of the Zuñi child.

What is known as the United States National Museum is also in charge of the Smithsonian Institution,[1] and here are deposited the objects of archæological and historical interest secured by the government explorations and by other means. The linguistic material is kept in the Bureau of Ethnology. The skulls and physiological material, illustrative of prehistoric times, are deposited in the Army Medical Museum, under the Surgeon-General's charge.

Major Powell, while in charge of the Geographical and Geological Survey of the Rocky Mountain Region, had earlier prepared five volumes of *Contributions to Ethnology*, all but the second of which have been published. The first volume (1877) contained W. H. Dall's "Tribes of the Extreme Northwest" and George Gibbs' "Tribes of Western Washington and Northwestern Oregon." The third (1877): Stephen Powers' "Tribes of California." The fourth (1881): Lewis H. Morgan's "Houses and house life of the American Aborigines." The fifth (1882): Charles Rau's "Lapidarian sculpture of the Old World and in America," Robert Fletcher's "Prehistoric trephining and cranial Amulets," and Cyrus Thomas on the Troano Manuscript, with an introduction by D. G. Brinton.

Among the *Reports* of the geographical and geological explorations and surveys west of the 100th meridian conducted by Capt. Geo. M. Wheeler, the seventh volume, *Report on Archæological and Ethnological Collections from the vicinity of Santa Barbara, California, and from ruined pueblos of Arizona and New Mexico and certain Interior Tribes* (Washington, 1879), was edited by F. W. Putnam, and contains papers on the ethnology of Southern California, wood and stone implements, sculptures, musical instruments, beads, etc.; the Pueblos of New Mexico, their inhabitants, architecture, customs, cliff houses and other ruins, skeletons, etc.; with an *Appendix* on Linguistics, containing forty Vocabularies of Pueblo and other Western Indian Languages and their classification into seven families.

The *Reports* of the Geological and Geographical Survey of the Territories, under the charge of F. V. Hayden, brought to us in those of 1874–76 the knowledge of the cliff-dwellers, and they contain among the miscellaneous publications such papers as W. Matthews' *Ethnography and Philology of the Hidatsa Indians* and W. H. Jackson's *Descriptive Catalogue of photographs of No. Amer. Indians.*

There are other governmental documents to be noted: *The Exploration of the Red River of Louisiana in 1852*, by R. B. Marcy and G. B. McClellan (Washington, 1854), contains a vocabulary of the Comanches and Witchitas, with some general remarks by W. W. Turner. There is help to be derived from the geographical details, and from something on ethnology, in the *Reports of Explorations and Surveys for a Railroad from the Mississippi River to the Pacific Ocean* (Washington, 1856–60, in 12 vols.); in W. H. Emory's *Report on the United States and Mexican Boundary Survey* (Washington, 1857–58, in 2 vols.); J. H. Simpson's *Report of Explorations across the great basin of the territory of Utah in 1859* (Washington, 1876); J. N. Macomb's *Report of the Exploring Expedition from Santa Fé to the Junction of the Grand and Green Rivers of the Great Colorado of the West in 1859* (Washington, 1876).

There were also published, under the auspices of the government, the conglomerate and very unequal work of

search" is not to its full extent true, since the physiological side of the subject seems to be left in Washington to the Army Medical Museum.

[1] Cf. Charles Rau's *Archæological Collections of the United States National Museum* (1876) in *Smithsonian Contributions*, xx., with many illustrative woodcuts; and a paper by Ernest Ingersoll in *The Century*, January, 1885. Cf. also F. W. Putnam's contribution on American Archæological Collections in the *American Naturalist*, vii. 29.

Henry R. Schoolcraft, *Historical and Statistical Information respecting the history, conditions, and prospects of the Indian Tribes of the United States, collected and prepared under the direction of the Bureau of Indian Affairs* (Philad., 1851–57, in 6 vols., with a trade edition of the same date). An act of Congress (March 3, 1847) authorized its publication. As reissued it is called *Archives of aboriginal knowledge, containing original papers laid before Congress, respecting the Indian tribes of the United States* (Philadelphia, 1860, '68, 6 vols.). It has the following divisions: General history. — Manners and customs. — Antiquities. — Geography. — Tribal organization, etc. — Intellectual capacity. — Topical history. — Physical type. — Language. — Art. — Religion and mythology. — Demonology, magic, etc. — Medical knowledge. — Condition and prospects. — Statistics and population. — Biography. — Literature. — Post-Columbian history. — Economy and statistics. An edition of vols. 1–5 (1856) is called *Ethnological researches respecting the Red Men of America, Information respecting the history*, etc. The sixth volume is in effect a summary of the preceding five.[1]

At a recent meeting of the American Association for the Advancement of Science, a committee was charged with preparing a memorial to Congress, urging action to insure the preservation of certain national monuments. There is a summary of their report in *Science*, xii. p. 101.

Of all European countries, the most has been done in France, by way of periodical system and corporate organizations, to advance the study of American anthropology, ethnology, and archæology. The *Annales des voyages, de la géographie et de l'histoire, traduits de toutes les langues Européennes; des relations originales, inédites*,[2] the publication of which was begun by Malte-Brun in 1808 and continued to 1814, and the *Nouvelles Annales des Voyages*, begun in 1819 and continued with a slightly varying title till 1870, are sources occasionally of much importance. At a later day, Edouard Lartet and others have used the *Annales des Sciences Naturelles* as a medium for their publications. We hardly trace here, however, any corporate movement before the institution of the Société de Géographie de Paris in 1820. In 1824 it issued the first volume of its *Recueil de Voyages et de Mémoires*, which reached seven volumes in 1864, and had included (vol. ii.) an account of Palenqué and the researches of Warden on the antiquities of the United States. Since this society began the issue of its *Bulletin* in 1827, it has occasionally given assistance in the study of American archæology.

The earliest distinctive periodical on the subject was the *Revue Américaine*, of which, in 1826–27, three volumes, in monthly parts, were published in Paris.[3] In 1857 a movement was inaugurated which engaged first and last the coöperation of some eminent scholars in these studies, like Aubin, Buschmann, V. A. Malte-Brun, Abbé Brasseur de Bourbourg, Jomard, Alphonse Pinart, Cortambert, Léon de Rosny, Waldeck, Abbé Domenech, Charencey, etc. The active movers were first known as the Comité d'Archéologie Américaine, and they issued an *Annuaire* (1863–67) and one volume, at least, of *Actes* (1865), as well as a collection of *Mémoires sur l'archéologie Américaine* (1865). This organization soon became known as the Société Américaine de France, and under the auspices of this name there has been a series of publications of varying designation.[4] Its *Annuaire* began in 1868, and has been continued. The general name of *Archives de la Société Américaine de France* covers its other publications, which more or less coincide with the *Revue Orientale et Américaine par Léon de Rosny*, the first series of which appeared in Paris in 10 vols., in 1859–65, followed by a second, the first volume of which (vol. xi. of the whole) is called *Revue Américaine, publié sous les auspices de la Société d'Ethnographie et du Comité d'Archéologie Américaine*, and is at the same time the fourth volume of the *Actes de la Société d'Ethnographie Américaine et Orientale*. The whole series is sometimes cited as the *Mémoires de la Société d'Ethnographie*.[5] The series, already referred to, of the *Archives de la Soc. Amér. de France* is made up thus: Première série: vol. i., *Revue Orientale et Américaine;* ii., *Revue Américaine;* iii. and iv., *Revue Orientale et Américaine*.[6] The nouvelle série has no sub-titles, and the three volumes bear date 1875, 1876, 1884.

[1] B. P. Poore's *Descriptive Catal. Govt. Pub.*, p. 593; Field's *Ind. Bibliog.*, no. 1379; Allibone's *Dictionary*, iii. p. 1952, for references and opposing criticisms. Some of the condemnation of the book is too sweeping, for amid its ignorance, confusion, and indiscrimination there is much to be picked out which is of importance. Cf. Parkman's *Jesuits*, p. lxxx; Wilson's *Prehistoric Man*, ii. ch. 19; Brinton's *Myths*, p. 40. Cf. on Schoolcraft's death (with a portrait) *Historical Mag.*, April, 1865; *Amer. Antiq. Soc. Proc.*, April, 1865.

F. S. Drake's *Indian Tribes of the United States* (Philad., 1884) is, with some additional matter, a rearrangement of Schoolcraft, the omission to acknowledge which on the title-page being an unworthy bibliographical deceit. Schoolcraft's rivalry of Geo. Catlin and his ignoring of Catlin's work is commented on at some length by Donaldson in the *Smithsonian Inst. Report*, 1885, part ii. pp. 373–383.

[2] For full details of this and other publications mentioned in this paper, see S. H. Scudder's *Catalogue of Scientific Serials, 1633–1876*, published by the library of Harvard University in 1879.

[3] Sabin, xvii., no. 70354. The Congrès Archéologique de France began its Séances générales in 1834, but the interest of its *Comptes rendus* for Americanists is for comparative illustration. The two volumes of *Mémoires de la Société Ethnologique* (Paris, 1841–45) contain nothing bearing directly on American archæology. Much the same may be said of the *Annales Archéologiques fondées par Didron aîné*, in 1844, and continued to 1870; of the *Bulletin Archéologique* (1844–46) of the Athénæum Français, and of its continuation, the *Bulletin Archéologique Français* (1846–56); and of the *Annales* of the Institut Archéologique (1844, etc.).

[4] *Am. Antiq. Soc. Proc.*, April, 1876.

[5] A *Revue Ethnographique* was begun in 1869. A Société Ethnologique, publishing *Bulletin* (1846–47) and *Mémoires* (1841–45), is a distinct organization.

[6] S. H. Scudder, in his *Catalogue of Scientific Serials*, no. 1528, endeavors to put into something like orderly

The student of comparative anthropology will resort to the *Materiaux pour l'histoire positive et philosophique* (later *primitive et naturelle*) *de l'homme*, the publication of which was begun at Paris in 1864 by Gabriel de Mortillet, and has been continued by Trutot, Cartailhac, Chautre, and others. This publication has contained abstracts of the proceedings of an annual gathering in Paris, whose *Comptes rendu* have been printed at length as of the *Congrès international d'anthropologie et d'archéologie préhistoriques* (1865, etc.).[1]

Léon de Rosny published but a single volume of a projected series, *Archives paléographiques de l'Orient et de l'Amérique* (Paris, 1870–71), which contains some papers on Mexican picture-writing. Rosny and others, who had been active in the movement begun by the Comité d'Archéologie Américaine, were now instrumental in organizing the periodical gathering in different cities of Europe, which is known as the *Congrès international des Américanistes*. The first session was held at Nancy in 1875, and its *Compte Rendu* was published in two volumes (Nancy and Paris, 1876). The second meeting was at Luxembourg in 1877 (*Compte Rendu*, Paris, 1878, in 2 vols.); the third at Brussels in 1879 (*Compte Rendu*); the fourth at Madrid in 1881 (*Congreso internacional de Americanistas. Cuarta reunion*, Madrid, 1881); the fifth at Copenhagen (*Compte Rendu*, Copenhagen, 1884); and others at Chalons-sur-Marne, Turin, and Berlin. The papers are printed in the language in which they were read.

The *Mémoires de la Société d'Ethnographie* (founded in 1859) began to appear in 1881, and its third volume (1882) is entitled *Les Documents écrits de l'Antiquité Américaine, compte rendu d'une mission scientifique en Espagne et en Portugal, par Léon de Rosny, avec une carte et 10 planches.* The fourth volume is P. de Lucy-Fossarieu's *Ethnographie de l'Amérique Antarctique* (Paris, 1884). In the second volume of a new series there is an account by V. Devaux of the work in American ethnology done by Lucien de Rosny as a preface to a posthumous work[2] of Lucien de Rosny, *Les Antilles, étude d'Ethnographie et d'Archéologique Américaines* (Paris, 1886).

Latterly there has been a consolidation of interests among kindred societies under the name of Institution Ethnographique, whose initial *Rapport annuel sur les récompenses et encouragements décernés en 1883* was published at Paris in 1883. This society now comprises the Société d'Ethnographie, Société Américaine de France, Athénée Oriental, and Société des Etudes Japonaises.

In England, organized efforts for the record of knowledge began with the creation of the Royal Society, though certain sporadic attempts had earlier been known. America was represented among its founders in the younger John Winthrop, and Cotton Mather was a contributor to its transactions, and there has occasionally been a paper in its publications of interest to American archæologists.[3] The Society of Antiquaries began to print its *Archæologia* in 1779 and its *Proceeedings* in 1848, and the American student finds some valuable papers in them. The British Association for the Advancement of Science began its *Reports* with the meeting of 1831, and it has had among its divisions a section of anthropology. In 1830 the Royal Geographical Society began its *Journal* with a preliminary issue (1830–31, in 2 vols.), though its regular series first came out in 1832. Its *Proceedings* appeared in 1855, and both publications are a conspicuous source in many ways relating to early American history.[4] Closely connected with its interest has been the publication begun under the editing of C. R. Markham, and called successively *Ocean Highways* (1869–73, vol. i.–v.), with an added title of *Geographical Review* (1873–74), and lastly as *The Geographical Magazine* (vol. i.–iii., 1874–76).

The Ethnological Society published four volumes of a *Journal*[5] between 1844 and 1856, and resuming published two more volumes in 1869–70. Its contents are mainly of interest in comparative study, though there are a few American papers, like D. Forbes's on the Aymara Indians of Peru. This society's *Transactions* was issued in two volumes, 1859–60; and again in seven volumes, 1861–69.

Meanwhile, some gentlemen, not content with the restricted field of the Ethnological Society, founded in London an Anthropological Society, which began the publication of *Memoirs* (1863–69, in 3 vols.); and in this publication Bollaert issued his papers on the population of the new world, on the astronomy of the red man, on American paleography, on Maya hieroglyphics, on the anthropology of the new world, on Peruvian graphic records, — not to name other papers by different writers. The *Transactions* and *Journal* of the society, as well as the *Popular Magazine of Anthropology* (1866), made part in one form or another of the *Anthropological Review*, begun in 1863, and discontinued in 1870, when the *Journal of Anthropology* succeeded, but ceased the next year. The *Proceedings* of the society make one volume, 1873–75, under the title of *Anthropologia*, and the society also maintained a series of translations of foreign treatises, the first of which

arrangement the exceedingly devious devices of duplication of this and allied publications.

[1] A *Revue d'Anthropologie* was begun at Paris, under the direction of Broca, in 1872. A Société d'Anthropologie began two series, *Bulletins* and *Mémoires*, in 1860. Mortillet conducted *L'Homme* from 1883 to 1887, when he and his associates in this work suspended its publication to devote themselves to a *Dictionnaire des Sciences Anthropologiques* and to a *Bibliothèque Anthropologique*.

[2] Rosny died April 23, 1871.

[3] Its publications began in 1665. Cf. synopsis in Scudder's *Catalogue*, pp. 26–27. Cf. C. A. Alexander on the origin and history of the Royal Society, in *Smithsonian Rept.*, 1863.

[4] Some of the local societies deal to some extent in American subjects; *e. g.*, the *Journal of the Manchester Geographical Society*, begun in 1885.

[5] Not to be confounded with *The Ethnological Journal*, vol. i., 1848–49, and vol. ii., 1854, incomplete; and *The Ethnological Journal*, 1 vol., 1865–66.

was Theodor Waitz's *Introduction to Anthropology*, ed. from the German by J. F. Collingwood (1863); and this was followed by a version by James Hunt, the president of the society, of Professor Carl Vogt's *Lectures on Man, his place in Creation and in the history of the Earth* (1864), and by other works of Broca, Pouchet, Blumenbach, etc.

What is known as the Anthropological Institute of Great Britain and Ireland united some of these separate endeavors and began its *Journal* in 1871. The *Quarterly Journal of the Geological Society* has also at times been the channel by which some of the leading anthropologists have published their views, and a few papers of archæological import have been given in the *Transactions* (1884, etc.) of the Royal Historical Society. Professedly broader relations belong to the *Transactions* (*Comptes rendus*) of the International Congress of prehistoric (anthropology and) archæology, which began its sessions in 1866.[1] The latest summary is the *Archæological Review, a journal of historic and prehistoric antiquities*, edited by G. L. Gomme, of which the first number appeared in March, 1888, which has for a main feature a bibliographical record of past and current archæological literature.[2]

It is, however, in the volumes of the Hakluyt Society's publications, beginning in 1847, in the annotated reprint of the early writers on American nations and on the European contact with them, that the most signal service has been done in England to the study of the early history of the new world. They are often referred to in the present History.

In Germany a *Magazin für die Naturgeschichte des Menschen* was published at Zittau as early as 1788–1791.

Wagner published at Vienna, in 1794–96, two volumes of *Beiträge zur philosophischen Anthropologie;* and Heynig's *Psychologisches (zugleich Anthropologisches) Magazin* was published at Altenburg in 1796–97.

The Berliner Akademie der Wissenschaft began its *Abhandlungen* in 1804, but it was not till long after that date that Buschmann and others used it as a channel of their views.

Vertuch's *Archiv für Ethnographie und Linguistik* (Weimar, 1807) only reached a single number.

The *Zeitschrift für physische Aerzte*, which was published by Nasse, at Leipzig, 1818–22, was succeeded by the *Zeitschrift für die Anthropologie* (Leipzig, 1823–24), and this was followed by a single volume, *Jahrbücher für Anthropologie* (Leipzig, 1830).

Bran's *Ethnographisches Archiv* was published at Jena from 1818 to 1829.

It was not till after 1860 that the new interest began to manifest itself, though Fechner's *Centralblatt für Naturwissenschaften und Anthropologie* was published at Leipzig in 1853–54.

Ecker's *Archiv für Anthropologie* was published at Braunschweig in 1866–68, which came in 1870 under the direction of the Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte, which also began a *Correspondenzblatt* in 1870, and a series, *Allgemeine Versammlung*, in 1873. This is the most important of the German societies.

Bastian's *Zeitschrift für Ethnologie* was begun at Berlin in 1869, and later added a *Supplement.*

The Anthropologische Gesellschaft of Vienna began its *Mittheilungen* in 1870; and in 1887 the Prähistorische Commission of the Kais. Akad. der Wissenschaften at Vienna printed the first number of its *Mittheilungen.*

The *Verein für Anthropologie* in Leipzig published but a single number of a *Bericht* in 1871.

The Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte continued its *Verhandlungen* for 1871–72 only; and the Göttinger Anthropologischer Verein made but a bare beginning (1874) of its *Mittheilungen.*

The *Bericht* of the Museum für Völkerkunde was begun in Leipzig in 1874.

The Münchener Gesellschaft für Anthropologie, Ethnologie und Urgeschichte began the publication of *Beiträge* in 1876.

In all these publications there have been papers interesting to American archæologists, if only in a comparative way, and at times American subjects have been frequent, especially in later years. The publications of zoölogical and geographical societies have in some respects been at times of equal interest, but it has not been thought worth while to enumerate them.[3]

The Königliche Museum at Berlin has a considerable collection of American antiquities, which has been fostered by Humboldt and others, and the ethnological department has made some important publications like those relating to *Amerika's Nordwestküste.*[4]

Waitz in his *Anthropologie der Naturvölker* (vol. iii.; *Die Amerikaner*, Th. i., Leipzig, 1862) has enumerated the literature of American anthropology upon which he depended.

The interest in most of the other European countries is more remotely American. The Museum of Ethnography at St. Petersburg is not without some objects of interest.[5]

[1] Cf. J. R. Bartlett on an Antwerp meeting, in *Amer. Antiq. Soc. Proc.*, 1868.

[2] Such periodicals as *Nature* and *Popular Science Review* show how anthropological science is attracting attention.

[3] See Scudder's *Catalogue.*

[4] The third volume of Bastian's *Culturländer des Alten America* (Berlin, 1886) comprises "Nachträge und Ergänzungen aus den Sammlungen des Ethnologischen Museums."

[5] *Congrès des Américanistes, Compte Rendus*, Nancy, ii. 271.

In Sweden the Antropologiska Sällskapet of Stockholm began a *Tidsskrift* in 1875; but it affords little assistance to the Americanist except in comparative study.[1]

The student will find some suggestions in a little tract by J. J. A. Worsaae, *De l'organisation des musées historico-archéologiques dans le Nord et ailleurs. Traduit par E. Beauvois* (Copenhagen, 1885), which is extracted from the *Mémoires de la société royale des antiquaires de Nord, 1885*.

There has begun recently in Leyden an *Internationales Archiv für Ethnographie. Herausg. von Krist. Bahnson, Guido Cora* [*etc.*] (Leiden, 1888).

In Italy the *Archivio per l'Antropologia et la Etnologia* was begun at Florence in 1871, and was later made the organ of the Società Italiana di Antropologia di Etnologia. There is an occasional paper in the *Bollettino della Società Geografica Italiana*, published at Rome.

In Spain the Sociedad Antropológica Española began at Madrid the publication of its *Revista de Antropologia* in 1875.

The session of the Congrès des Américanistes at Madrid in 1881 gave a new life in Spain to the study of American archæology and history, and out of this impulse there was begun a *Biblioteca de los Americanistas, publicala D. Justo Zaragoza; Editor D. Luis Navarro;* and the series has been begun with the *Recordacion florida, discurso del reino de Guatemala*, an hitherto unpublished work (1690) of Francisco Antonio de Fuentes y Guzmán, edited by Justo Zaragoza; and with the *Historia de Venezuela*, being a third edition of the work of José de Oviedo y Baños, edited by C. F. Duro.

The Museo Nacional in Mexico has grown to have a proper importance,[2] since the Mexican government has prevented the further exportation of archæological relics. It was founded in 1824 by Fathers Icaza and Gondra, but it owes its creation largely to the skill of Professor Gumesindo Mendoza, its curator, by whose death it lost much.[3] There is a tendency to draw to it other collections. There was a beginning made to publish illustrations of the relics in the museum sixty years ago, but it came to little,[4] and it was not until recently the publication of *Anales del Museo Nacional de Méjico* was begun that there seemed to be a proper effort made. The periodicals *Revista Mexicana* (1835), and *Museo Mexicano* (1843–45) have done something to illustrate the subject, — not to name others of less importance. The principal periodical source farther south, the *Registro Yucatéco*, only ran to four volumes, published at Merida in 1845–46.

The most conspicuous archæological repository in South America is that of the National Museum at Rio de Janeiro, whose published *Mémoires* contain important contributions to Brazilian Archæology.

[1] Cf. Oscar Montelius, *Bibliographie de l'archéologie préhistorique de la Suède pendant le 19e siècle, suivie d'un exposé succinct des sociétés archéologiques suédoises* (Stockholm, 1875).

[2] It is described by Tylor in his *Anahuac*, ch. 9; by Brocklehurst in his *Mexico to-day*, ch. 21; by Bandelier in the *American Antiquarian* (1878), ii. 15; in Mayer's *Mexico;* and in the summary of information (fifteen years old, however) in Bancroft's *Mexico*, iv. 553, etc., with references, p. 565, which includes references to the Uhde collection at Heidelberg, the Christy collection in London (Tylor), that of the American Philosophical Society in Philadelphia (*Trans.*, iii. 570), not to name the Mexican sections of the large museums of America and Europe. Henry Phillips, Jr. (*Proc. Amer. Philosophical Soc.*, xxi. p. 111) gives a list of public collections of American Archæology. There are some private collections mentioned in the *Archives de la Soc. Amér. de France, Nouv. Ser.*, vol. i. A. de Longperier's *Notice des Monuments dans la Salle des Antiquités Américaines* (Paris, 1880) covers a part of the great Paris exhibition of that year. Something is found in E. T. Stevens's *Flint Chips, a guide to prehistoric archæology as illustrated in the Blackmore Museum* [at Salisbury, England], London, 1870.

[3] There is an account of Mendoza in the *Amer. Antiq. Soc. Proc.*, April, 1888, p. 172.

[4] *Coleccion de las Antigüedades Mexicanas que ecsisten en el Museo Nacional, litografiadas por Frederico Waldeck* (Mexico, 1827 — fol.); Sabin, iv. 15796. See miscellaneous references on Mexican relics in Bancroft's *Nat. Races*, iv. 565.

*** *The editor must be understood as approaching the purely archæological side of the study of Aboriginal America, as a student of the literature pertaining to it, rather than as a critic of phenomena. He has not proceeded even in this course without consultation with Professors Putnam, Haynes, and Brinton, with Mr. Lucien Carr and with Señor Icazbalceta.*

INDEX.

[Reference is commonly made but once to a book, if repeatedly mentioned in the text; but other references are made when additional information about the book is conveyed.]

Aa, Van der, *Voyagien*, xxxv.
Abancay, 236.
Abbot, C. C., associates the rude implements of Trenton with Eskimos, 106, 366; his discoveries in the Delaware gravels considered, 330 *et seq.*; *Implements in the river-drift at Trenton*, 333; *Supposed palæolithic implements from the valley of the Delaware*, 334, 388; on the pre-Indian race, 336; importance of his discoveries, 356; on the origin of Americans, 369; on the tertiary man, 387; researches in the Trenton gravels, 388; finds a molar tooth, 388; and a human jaw, 388; *Antiq. of Man in the Delaware Valley*, 388; *Evidences of the Antiq. of Man*, 388; on archæological frauds, 403; *Primitive Industry*, 358, 416; on Atlantic coast pottery, 419.
Abbott, *Brief Description*, 109.
Abelin, J. P., *Theatrum Europeum*, xxxiii. *See* Gottfried, J. L.
Abenaki, 322.
Abert, J. W., *Examination of New Mexico*, 396.
Acagchemem, 328.
Acaltecs, 191.
Achilles Tatius, *Isagoge*, 8.
Acolhua, forms a confederacy, 147.
Acolhuacan conquered, 147.
Acoma, 396.
Acora, burial-tower at, 248; cut, 249.
Acosta, José de, in De Bry, xxxii; *East and West Indies*, 45, 262; *Historia*, 155, 262; corresponds with Tobar, 155; in Peru, 262; *Concilium Limense*, 268; *Nueva Granada*, 282.
Adair, Jas., *Amer. Indians*, 116, 320, 424; on the lost tribes, 116; on the mounds, 398.
Adam, Lucien, on Fousang, 80; opposes Irish connection with Mexico, 83; on the Eskimo language, 107; on the Quichua, 281; criticises Horatio Hale, 422; edits the Taensa grammar, 426; *Le Taensa*, 426; *Études sur six langues*, 425, 427; *Lengua Chiquita*, 425; *Examen grammatical*, 425.
Adam of Bremen on Vinland, 89; *Hist. Eccles.*, 89, 94.
Adam, a race earlier than, 384.
Adams, Davenport, *Beneath the Surface*, 412.
Adelung, J. C., xxxv, 422.
Adhémer, *Rev. de la Mer*, 387.
Aelian, *Varia Historia*, 21, 40, 42.
Aeneas Silvius, 26.
Æschylus, *Prometheus Bound*, 13.
Africa, ancient views of its extension south of the equator, 7, 10; circumnavigated, 7; migrations from, to America, 116; its people in Yucatan, 370.
Agassiz, Alex., *Cruises of the Blake*, 17.
Agassiz, Louis, on the autochthonous American man, 373; portrait, 373; his views attacked, 374; on the earliest land above water, 384; *Geol. Sketches*, 384.
Agatharcides, *Geography*, 34.
Agnese map (1554), 53.
Agnew, S. A., 410.
Agriculture in pre-Spanish America, 173, 417; in Peru, 252.
Ahuitzotl, 148.
Aix-la-Chapelle, treaty, 306.
Alabama, shell-heaps, 393; mounds, 410.
Alaguilac language, 428.
Alaska, 77; caves, 391; Indians, 328.
Albany, treaty at (1674), 304; (1684), 304.
Albinus, P., 370.
Albornoz, J. de, *Lengua Chiapaneca*, 425.
Albyn, Cornelis, *Nieuwe Weerelt*, xxv.
Alcavisa, 224.
Alcedo, Ant. de, *Bibl. Amer.*, ii.
Alcobasa, 265.
Aleutian islands, as a route from Asia, 78; caves, 391; shell-heaps, 393.
Alexander, C. A., on the Royal Society, 442.
Algonquins, trace of the Northmen among, 99; hero-gods, 430; legends of, 431.
Allan, John, his library, xiii.
Allard, Latour, 192.
Allday, Jacob, 107.
Allen, Chas., *Stockbridge Indians*, 323.
Allen, Edw. G., iv.
Allen, F. A., 379; *Polynesian Antiq.*, 82.
Allen, Harrison, 201.
Allen, Joel A., *Works on the orders of Cete, etc.*, 107.
Allen, Zachariah, *Condition of Indians*, 323.
Allibone, S. A., xii.
Alligator mound, 409.
Allouez, reference to copper mines, 417.
Alloys of metals, 418.
Almaraz, R., *Memoria*, 182.
Alpacas, 213, 253.
Alsop, Richard, 328.
Alzate y Ramirez, J. A., *Xochicalco*, 180.
Amaquemecan, 139.
Amat de San Filippo, Pietro, *Planisferio del 1436*, 56.
Amautas, 223, 241.
Amegluno, F., *La Antigüedad del Hombre en la Plata*, 390.
America, early descriptions of, xix; early voyages to, xix; how far known to the ancients, 1, 15, 22, 29; held to be Atlantis, 16; to be the land of Meropes, 22; men supposed to reach Europe from, 26; early references to, 40; Egyptian visits, 41; Phœnician, 41; Tyrian, 41; Carthaginian, 41; Asiatic connection, 59, 76; Basques in, 75; early visits by drifting vessels, 75; voyage to Fousang, 78; maps of routes from Asia, 81; by the Polynesian islands, 81; state of culture reached in, 329; origin of man in, 369; climate, 370; autochthonous man in, 372; held to be, later than Europe, the home of man, 377; stone age in, references, 377; ethnological maps, 378; connections with Asia, 383; earliest land above water, 384; geological connection with Europe, 384; bibliog. of its aboriginal aspects, 413; comprehensive treatises on the antiquities, 415; arts in, 416. *See* Africa, Asia, Chinese, Jews, Madoc, Man, Northmen, Phœnician, Scythian, Tartar, Zeni, Vinland, etc.
American Academy of Arts and Sciences, 437.
American Antiq. Soc. Catal., xvii; founded, 371, 437; *Archæologia Americana*, 437.
American Anthropologist, 438.
American Antiquarian, 439.
American Association for the Advancement of Science, 437; would protect antiquities, 441.
American Ethnological Society, 320, 399, 437; its publications, 376.
American Folk-Lore Society, 438.
American Gazetteer, 321.
American Geographical Society, xvii, 437.
American Historical Association, 439.
American Journal of Archæology, 438.
American Journal of Science and Arts, 438.
American Naturalist, 438.
American Philosophical Society, their publications, 437.
American Traveller (1743), xxxv, 370.
Americana, i; bibliographies, i; dealers in, xiii.
Americanism, 160.
Ammianus Marcellinus, 42.
Ampère, *Promenade en Amérique*, 81.
Anáhuac, history of, 139; map of, in Clavigero, in facs., 144; its limits, 182; map, 182.
Anaxagoras, 3.

Anchorena, J. D., on the Quichua grammar, 280.
Ancients, their knowledge of America, 1.
Ancon, burials at, 276, 373; cut of mummy, 276; of cloth, 278.
Ancona, Elizio, *Yucatan*, 166.
Ande, 428.
Anderson, Rasmus B., translates Horn's *Lit. Scandin. North*, 84; *America not discovered by Columbus*, 97; on Dighton Rock, 104.
Anderson, Winslow, on human bodies found in California, 138.
Andrade, J. M., 170; *Catalogue*, 414.
Andree, Richard, *Ethnog. Parallelen*, 105.
Andrews, Edmund B., on geological evidence from the great lakes, 382; on the Ohio mounds, 402, 407, 408.
Angliara, Johan von, xxi.
Angrand, L., on Waldeck, 194; *Les Antiquités de Tiaguanaco*, 273.
Anguilla island, 496.
Animal mounds, 400.
Animals, domestic, hardly known in pre-Spanish America, 173.
Animas River, ruins, 396.
Annales maritimes, xix.
Annales Archéologiques, 441.
Annals of Science, 418.
Antarctic continent, 10.
Anthropologia, 442.
Anthropological Institute of Great Britain, 443; *Journal*, 443.
Anthropological Institute of New York, 438.
Anthropological Review, 442.
Anthropological Society of Washington, 438.
Anthropology and its method, 378, 411; hist. of, 411.
Antichthones, 9.
Antilles, remnants of Atlantis, 44. *See* Antillia.
Antillia, island, 31, 48; bibliog. 48; in Bianco and Pizigani maps, 54.
Antipodes, ancient views of, 9, 31, 37.
Antiquarisk Tidsskrift, 94.
Antiquity of man. *See* Man.
Antisell, Thos., 78.
Antonio, Nic., *Bibl. Hispaña nova*, 413.
Apaches, 327
Apalaches, 426, 431.
Apes, Wm., *Kingdom of Christ*, 116; *Son of the Forest*, 323.
Apianus's map, xxi.
Apollonius Rhodius, *Argonautica*, 35.
Apponyi, *Libraries of San Francisco*, xviii.
Aprositos, 48.
Arabian geographers, 48.
Arabic maps, 53.
Arabs, their knowledge of the Atlantic islands, 47.
Arana, D. B., *Notas*, vi.
Arana, *Bibliog. de obras anon.*, xxiv.
Aratus, *Phaenomena*, 35.
Araucanians, 428.
Arcelin, 357.
Archæological Institute of America, 169, 438.
Archæological Review, 443.
Archer-Hind, Ed. Plato's *Timæus*, 46.
Archimedes, his globe, 3.
Architecture of Middle America, 176, 177; in Peru, 247.
Archiv für Ethnographie, 444.
Archivo des Açores, xix.
Archivio per l'Anthropologia, 444.
Arctic peoples. *See* Eskimos.
Arequipa, 277.
Argillite, 417; spear-points, 359; commonness of the mineral, 363.
Argonauts, 6.
Argyle, Duke of, *Primeval Man*, 381.
Arica, 275.
Arickarees, 417.
Aristotle on the form of the earth, 2; *Meteorologia*, 7; *De Mirab. Auscultationibus*, 24; on the Atlantic, 28; his scientific treatises, 34; his influence in the West, 37.
Arizona, caves in, 391; ruins in, 397; map, 397.
Armin, *Heutige Mexico*, 178.
Armstrong, Col., 312.
Army Medical Museum, 440.
Arnold, Gov., his stone windmill at Newport, 105.
Arrawak, 428.
Arriaga, José de, 264; *La Idolatria del Peru*, 264.
Arrow-heads, art of making, 417.
Arroyo de la Cuesta, F., *Mutsun language*, 425.
Artaun, S. de, 262.
Arthur, King, in Iceland, 60.
Arthur von Dartzig, xxxiii; *Hist. Ind. orient.*, xxxiii.
Arts in America, 416.
Arundel de Wardour, Lord, *Plato's Atlantis*, 45.
Asguaws, 111.
Asher, David, 200.
Ashtabula Co., Ohio, mounds, 408.
Asia, emigration to America, 59, 76, 329, 371, 383; similarity of flora, 60; of physical appearance of peoples, 76; migration to Fousang, 78; maps of routes to America; 81; supported by Humboldt, 371; testimony of jade, 417; ancient views of its east coast, 7. *See* Fousang, Mongols, etc.
Aspinwall, Thomas, his library, iv; burned, iv; sold to S. L. M. Barlow, iv.
Assarigoa, 289
Astley, *Voyages*, xxxv.
Astor Library, xvii.
Astrolabe, 37.
Astronomy among the Mexicans, 179.
Atahualpa, his portrait, 228; his palace, 231; meets Pizarro, 231.
Atenco, 139.
Ateneo de Linia, 282.
Athenæ Rauricæ, xxvi.
Atlantic islands, ancient names attached to, 14; remnants of Atlantis, 21, 45; fabulous ones, 31, 46; in maps, 47, 48; known to the Arabs, 47; as mapped by Gaffarel (*facsimile*), 52.
Atlantic Ocean, contour of its bottom, map, 17; depth of, 17; its plateaus, 21; dreaded by the ancients, 28; myths of, 31; soundings in, 44; Toscanelli's ideas of, 51; early maps of, 53; Arabs on, 72.
Atlantis, story of, 15; in Plato, 16; interpretations of it, 16; held to be America, 16, 43; maps of, 18, 19, 20; merely a literary ornament, 21; interest in it on the revival of learning, 33; history of the belief, 41; various identifications, 42; the Atlantic islands remnants, 43; Gaffarel's map of the remnants, 52; Dawson's views, 382.
Atonaltzin, 148.
Attu, 78.
Atwater, Caleb, *Indians of the N. W.*, 327; on the origin of Americans, 372; on the shell-heaps of the Muskingum, 392; *Antiquities in the State of Ohio*, 398; *Writings*, 398; *Tour to Prairie du Chien*, 298.
Aubin, his acc. of Boturini's collection of MSS., 159; purchases what was left of it, 160; aids in establishing the Soc. Américaine de France, 161; describes his own collection, 162; list of his MSS., 162; *Mém. sur la peinture didactique*, 176, 200; *Examen des anc. peintures fig. de l'anc. Mexique*, 200; *La langue Méxicaine*, 427.
Aughey, Samuel, 348.
Autochthonous theory, 375. *See* Man.
Avallon, 32.
Avendaño, F. de, 280.
Avendaño, H. de, 264; *Idolatrios de los Indios*, 264.
Avienus, *Ora maritima*, 25; *Descriptio orbis terræ*, 36.
Avila, F. de, 264; his Indian mythology as translated by Markham, 436; his chapter on the Quichua, 274.
Aviles, Estavan, *Guatemala*, 168.
Axapusco, 173.
Axayacatl, 148.
Axelsen, Otto, 107.
Axon, W. E. A., on Trübner, xvi.
Aymara Indians, 226, 428, 442; language, 279, 428.
Aymé, L. H., on Mitla, 185.
Azangaro, 271.
Azatlan, Fort, 408.
Azcapuzalco, 146.
Azores, known to the Arabs, 47; on the early maps, 49; statue in, 49.
Aztecs, origin of, 135; traces of their tongue in the north, 138; their migration maps, 138; their cradle in the north, 137, 138; in the south, 139; arrive in Mexico, 142; Ranking's map of their dominion, 144; divided into Mexicans and Tlatelulcas, 146; confederation formed, 147; laws and institutions, 153; *Mappe Tlotzin*, 163; their profiles, 193; the curve of the nose helped by an ornament, 193; their military dress, 193; picture-writing, 197 (*see* Hieroglyphics); Aubin's studies of it, 200; their books described, 203; their paper, 203; music of, 420; language, 426; hero-gods, 430; alleged monotheism, 430; mythology, 431; prayers, 431; priesthood and festivals, 431; sacred buildings, 431; goddess of war, 435. *See* Mexico, Nahua.
Aztlan, 137; map of, 394; a myth, 138; its situation, 138; in the south, 139.

Babbitt, Miss F. E., *Ancient Quartz Workers*, 345; *Glacial Man in Minnesota*, 388.
Babel, dispersion of, 137.
Bachiller y Morales, on the Northmen, 94.
Bachman, John, *Unity of the Human Race*, 374.
Backer, Louis de, *Saint Brandan*, 48; *Misc. Bibliog.*, 48.
Backofen, J. J., *Mutterrecht*, 380.
Bacqueville de la Potherie, *Hist. de l'Amérique*, 321, 324.
Baffin Land, 107.
Baguet, M. A., *Races prim. des deux Amériques*, 369.
Bahnson, K., 444.
Baily, John *Cent. America*, 197; *Guatemala*, 168.
Baird, S. F., on shell-heaps, 392.
Bake, J., *Posidonii reliquiæ*, 34.
Balboa, M. C., *Miscellanea Austral.*, 262.
Baldwin, Cornelius, on burial cists, 408.
Baldwin, C. C., 399; on the mound-builders, 402; *Relics of Mound-builders*, 403.
Baldwin, E., *La Salle County, Ill.*, 408.
Baldwin, John D., *Anc. America*, 412, 415.
Ballesteros, *Ordenanzas del Peru*, 268.
Baltic Sea, early maps, 119, 124, 125, 126, 129.
Baltimore, libraries, xviii.
Bamps, *L'homme blanc*, 195.
Bancarel, *Voyages*, xxxvi.
Bancroft, Geo., his library, xvii; on the Northmen, 93; his map of Indian tribes, 321; on the origin of Americans, 375; believes in the unity of the race, 375.
Bancroft, H. H., aids to bibliog. of Indian languages, vii; buys the Squier MSS., viii, 272; his library,

viii, ix; his *Native Races*, viii, 169, 415, 430; his lists and foot-note references, 414, 415; *Literary Undertakings*, viii; *Works*, viii; his *Central America*, ix; *Early American Chroniclers*, ix; criticised, ix; *Essays and Miscellanies*, ix; *Hist. of the Pacific States*, ix; *Hist. of California*, ix; on Mexican history, 150; on Sahagún, 157; on Clavigero, 158; on Maya history, 166; condenses the *Popul Vuh*, 166; on the anc. Mexican magnificence, 174; on their warfare, 175; attacks Morgan, 176; his estimate of Prescott, 269; on the moundbuilders, 401; on the general sources of aboriginal America, 413; his opinions, 415; on the aboriginal arts, 416; on American myths, 430.

Bandelier, A. F., on early Mexican chronology, 133, 155; on the Toltecs, 141; on the Aztec arrival, 142; on the Mexican confederacy, 147; on Torquemada, 157; on Ixtlilxochitl, 157; promises an ed. of the *Codex Chimalpopoca*, 158; on the *Popul Vuh*, 167; *Sources of the Aborig. History of Spanish America*, 167; *Warfare of the Ancient Mexicans*, 169, 175; *Tenure of lands*, 169; *Mode of government*, 169, 175; *Archæological Tour in Mexico*, 169, 180, 185; on the Mexican civilization, 173; Morgan's pupil, 174, 175; his papers on Mexican life, 175; admiration for Morgan, 175; on calendars, 179; *Studies about Cholula*, 180; *Archæolog. Notes on Mexico*, 182; on Mitla, 185; on the Mexican paintings, 200; on the Pueblo ruins, 396; *Sedentary Indians of New Mexico*, 396; *Ruins of Pecos*, 396; his use of sources, 413; *Bibliog. of Yucatan and Cent. America*, 414; on American Monotheism, 430; on Quetzalcoatl, 432; his labors in Mexico, 438.

Baradère, 192.

Barber, *Hist. Coll. Mass.*, 104.

Barber, E. A., 395, 419; *Les anciens pueblos*, 397.

Barcia, annotates Garcia, 369.

Bardsen, Ivan, his sailing directions, 109.

Barentz, voyage, 36.

Baring-Gould, Sabine, *Iceland*, 84, 85.

Barlow, S. L. M., his library, iv, xviii; *Rough List*, iv; *Bibl. Barlowiana*, v.

Barnard, M. R., 85.

Barranca, J. S., *Ollanta*, 281.

Barrandt, A., 409.

Barrientos, Luis, *Doct. Cristiana*, 425.

Barrow, John, *Voyages into the Polar Regions*, xxxvi, 93.

Barry, Wm., 408.

Barter. *See* Trade, Traffic.

Bartlett, John R., edits the Murphy Catalogue, x; the Carter-Brown Catalogues, xii; *Bibliog. Notices*, xii; drawing of Dighton Rock, 101, 104; *Personal Narrative*, 139, 396; on rock inscriptions, 410.

Bartlett, S. C., on Dartmouth College, 322.

Bartoli, *Essai sur l'Atlantide*, 46.

Barton, Benj. Smith, *New Views*, 76, 371, 398, 424; on the Madoc voyage, 110; his linguistic studies, 424; on the location of Indian tribes, 321; portrait, 371; his career, 371; *Amer. Antiq.*, 371; *Observations*, 398; thought the mounds built by the Toltecs, the descendants of the Danes, 398; on the Ohio mounds, 407; on affinities of Indian words, 437.

Bartram, John, *Travels*, 398, 410.

Bartram, Wm., *Travels*, 398, 410.

Basadre, Modesto, 214; *Riquezas Peruanas*, 244; on Tiahuanacu, 273.

Basalenque, *San Augustin de Mechoacan*, 168.

Basques in America, 74; their language, 75.

Bassett, F. S., *Legends of the Sea*, 46.

Bastian, Adolf, on Yucatan, 166; *Geschichte des Alten Mexico*, 172; *Stein Sculpturen aus Guatemala*, 197; *Der Mensch in der Geschichte*, 378; *Ein Jahr auf Reisen*, 436; on the religion of Peru, 436; *Zeitschrift für Ethnologie*, 443; *Culturländer*, 443.

Bates, H. W., *Ethnog. of America*, 76; *Cent. Amer.*, 76, 422.

Baylies, Francis, 104.

Beach, W. W., *Indian Miscellany*, 320.

Beamish, N. L., *Disc. of Amer. by the Northmen*, 96.

Bear Mound, in Kentucky, 409.

Beatty, Chas., *Tour in America*, 110, 116, 325; on the lost tribes, 116.

Beauchamp, A. de, *Conquête du Pérou*, 228.

Beauchamp, W. W., 323, 325.

Beaufoy, M., *Mex. Illustrations*, 180.

Beaumes Chaudes caves, 357.

Beauvois, Eugène, *L'Elysée transatlantique*, 31, 47; *L'Éden*, 33, 50; on St. Malo's voyage, 48; on the Irish discovery of America, 83; *Markland et Escociland*, 83; *Les relations des Gaels avec le Mexique*, 83; *Ancien Evêché du Nouveau Découvertes des Scandinaves*, 96; *Les derniers Vestiges du Christianisme dans le Markland*, 97; *Les Colonies Européennes du Markland*, 97; *Les Skrœlings*, 105.

Beccario, his map, 49.

Becher, H. C. R., *Trip to Mexico*, 170.

Becker, J. H., 403; *Migrations des Nahuas*, 139.

Beckwith, H. W., 327.

Becmann, I.C., *Hist. Orbis terrarum*, 43.

Bede, *De Natura Rerum*, 37.

Beéche, G., his books, xiii.

Behaim on the Seven Cities (island), 49; globe (1492), 58, 120.

Behring's Straits, route by, 77; map of, 77; in quaternary times, 78; once land, 383.

Behrnauer, W., *Commerce dans l'ancien Mexique*, 420.

Belknap, Jeremy, on the Norse voyages, 92.

Bell, A. W., 397.

Bell, J. S., 184.

Bellegarde, Abbé, xxxv.

Belt, Th., *Stone implements*, 388.

Beltran de Santa Rosa, P., *Idioma Maya*, 427.

Beltrami, J. C., *Pilgrimage*, 369.

Beloit, Wisc., mounds, 409.

Belt, Thos., on the Trenton gravels, 337; finds a skull in Colorado, 349.

Bembo, Cardinal, his history of Venice, 26.

Benasconi, A., on Palenqué, 191.

Benavides, Alonso, *Memorial*, 395.

Bendyshe, T., 411.

Benes, J. B., 265.

Benincasa, Andreas, his map (1476), cut, 56; other maps, 56.

Bennet and Wijk, *Nederl. Ontdekkingen*, xxxvii; *Zeereizen*, xxxvii.

Benzoni, *New World*, xxxii; printed with Martyr, xxiii.

Beothuks, 321. *See* Newfoundland.

Berenger, *Voyages*, xxxvi.

Berendt, C. H., his Maya collection bought by Brinton, 164; memoir by Brinton, 164; on Guatemala docs., 166; *Centres of Anc. Civilization*, 176; notes on Central America, 196; his books, 414; his linguistic studies, 426; *Analytical Alphabet*, 426, 427; his papers, 426; memoir by Brinton, 426; on the Maya tongue, 427; *Ancient Civilizations in Cent. America*, 427.

Bergen, 68.

Berger, H., *Fragmente des Hipparchus*, 34; *des Eratosthenes*, 9, 34; *Gesch. der Wiss. Erdkunde*, 36; *Geographie*, 28.

Beristain de Souza, *Bibl. Hisp.-Amer.*, ii, 413.

Berlin, A. F., 347.

Berlin, Akad. der Wissenschaft, 443; Gesellschaft für Anthropologie, 443; Königliche Museum, 443.

Berlin tablet, 404.

Berlioux, E. F., *Les Atlantes*, 43.

Bernard, *Voiages*, xxxv.

Bernhardy, G., *Eratosthenica*, 34.

Berniggerus, *Questiones*, 40.

Bernoulli, Dr., 200.

Berthelot, *Antiq. Canariennes*, 116.

Berthoud, E. L., 397; *Natchez Indians*, 326; on human relics in Wyoming, 389; *Creek Valley, Colorado*, 416.

Bertonio, L., his Aymara grammar, 279.

Bertran, Giacomo, map, 58.

Bertrand, *Mémoires*, 116.

Betanzos, J. J. de, *Doctrina*, 260; *Suma y Narracion de los Incas*, 260.

Betoner, Wm. (of Worcester), 50.

Beughem, C., *Bibl. Hist.*, i.

Bianco, Andreas, his map (1436), 50, 53, 55, 56, 114; cut of, 54; (1448), 50, 53; Carta Nautica, 55; assists Fra Mauro, 117.

Biart, Lucien, *Les Aztèques*, 143, 172; *The Aztecs*, 172.

Bibliographies, Americana, i; *Livres payés 1,000 francs et au dessus*, xx. *Biblioteca de los Americanistas*, 444. *Bibliothèque linguistique Amér.*, vii.

Biddle, *Sebastian Cabot*, 112; believed the Zeni story a fraud, 112.

Big Bone Lick, 388.

Bigelow, A., 409.

Bigelow, *Natick*, 322.

Bigmore, *Bibliog. of Printing*, xvi.

Billaine, *Recueil de divers Voyages*, xxxiv.

Bimini island, 47.

Birch, *Robt. Boyle*, 322.

Birchrod on Atlantis, 43.

Bird mounds, 409.

Biscayans in America, 75.

Bjarni Asbrandson, his voyage, 82.

Blackamoors found in Central America, 117.

Blackett, W. S., *Lost Histories of America*, 40, 43.

Blackmore collections, 399, 444.

Blade, J. F., *L'Origine des Basques*, 75.

Blake, C. C., on Peruvian skulls, 244.

Blake, John H., his Peruvian collection, 273.

Blenheim Library, xiii.

Blome, *Jamaica*, xxxiv.

Blondel, S., *Recherches*, 419.

Boas, Franz, on the Eskimos, 107; his papers, 107.

Boban, 179.

Bodfish, J. P., on the Northmen voyages, 104

Bodleian Library, *Codex Mendoza*, 203.

Boehmer, Geo. H., *Index to Anthropol. Articles*, 439.

Bohn, H. G., xvi.

Bolivia, map, 209.

Bollaert, Wm., on the Mexican calendars, 179; on Amer. palæography, 201; *Cent. Amer. hieroglyphics*, 201; *Antiq. Researches*, 270; *Anc. Peruvian graphic records*, 270; *Incas*, 270; on Tiahuanacu, 273; *Anthropol. of the New World*, 270, 375; his publications, 442.

Bollandists, *Acta Sanctorum*, 48.

Boncourt, F., 182.

Bone-workers, 417.

Bonneville, C. de, 370.

Boon, E. P., his library, xiii.

Bordone, B., his map of the Atlantic islands (1547), 57, 58; map of Scan-

dinavia, 114, 126; had access to the Zeno map, 73.
Borgia, Cardinal, his museum, 205.
Bory de St. Vincent, J. B., *Les Isles Fortunées*, 19, 43; map, 19.
Boscana, G., *Chinigchinich*, 328.
Bossange, Hector, xvi.
Boston, private libraries, x; Public Library, its catalogues, xvii; as centre of study in American history, xvii; its libraries, xvii.
Boston Athenæum, its catal., xvii.
Boston Society of Natural History, 437.
Botanical arguments for the connection of Asia and America, 383.
Boturini, Beneduci, books on Indian tongues, vii; his collections in Mexican history, 159; its vicissitudes, 159; described by Aubin, 159; *Idea de una nueva Hist.*, 159; facs. of title, 161; portraits, 160, 161; his catalogue, 159; his collection suffers in government hands, 162; contentions over it, 162.
Boucher de Perthes, his discoveries, 390; *Antiq. Celtiques*, 390; *De l'homme antédiluvien*, 390; *Bibl. Univ.*, 93.
Boucher de la Richarderie, *Bibl. Univ. des Voyages*, ii.
Boudinot, Elias, *Star in the West*, 116.
Boué, A., on the floras of the earth, 44.
Bouquet, Col., secures captives from the Indians, 290.
Bourgeois, Abbé, on tertiary man, 387.
Bourke, J. G., *Snake Dance*, 429.
Bourne, Wm., *Treasure for Travellers*, 369.
Bovallius, K., *Nicaraguan Antiq.*, 197.
Bowen, B. F., *America discovered by the Welsh*, 111.
Boyle, Fred., *Ride across a Continent*, 197.
Bracir (island). *See* Brazil.
Braddock, Gen., his march, 294, 296.
Bradford, A. W., *Amer. Antiq.*, 376, 415.
Brahm, Ger. de, 116.
Brainerd, David, his *Life*, 431.
Bran, *Ethnographisches Archiv*, 443.
Bransford, J. F., *Antiq. at Pantaleon*, 197.
Brasseur de Bourbourg, Abbé, his aids in linguistics, vii; his writings and career, vii, 170; *Coll. de docs. dans les langues Amér.*, vii; his library, xiii; on Egyptian traces in America, 41, 167; on the Atlantis theory, 44, 172; on Fousang, 80; on the Northmen and their traces, 94, 99; on scattered traces of the Jews, 116; on the Votan myth, 134; on the Chichimecs, 136; on the Nahua migrations, 138; his easy credence, 139; begins Mexican hist. at B. C. 955, 155; on Sahagún, 157; *Lettres au duc de Valmy*, 158; on the Toltecs, 158; *Nations civilisées du Mexique*, 158, 171; chief sources of, 171; uses the *Codex Chimalpopoca*, 158; the *Codex Gondra*, 158; describes Aubin's collection, 162; his own collection, 162; edits *Landa's Relation*, 164, 165, 200; *Mission scientifique au Mexique*, 164, 170; on Yucatan history, 165; edits the *Popul Vuh*, 99, 166; *Dissert. sur les mythes de l'Antiq. Amér.*, 166; his theory of cataclysms, 166; a Quiché MS., 167; translates *Mem. Tecpan-Atitlan*, 167; on Oajaca, 168; on Fuentes y Guzman, 168; portrait, 170; *Hist. du Canada*, 170; in Mexico, 170; *Esquisses l'histoire*, 170; *Ruines de Mayapan*, 170; *Lettres pour servir l'introduction a l'histoire du Mexique*, 171; helped by Aubin, 171; search for MSS., 171; *Quatre Lettres*, 171; bibliog., 171; his *MS. Troano*, 172, 200, 206, 207; *Chronol. hist. des Mexicains*, 179; on the ruins of Yucatan, 188; at Uxmal, 189; furnishes a text to Waldeck's *Monuments Anc. du Mexique*, 194; *Ruines de Palenqué*, 171, 194; *Lettre à Léon de Rosny*, 200; Landa's alphabet explained, 200; futile attempts at interpreting the hieroglyphics, 201; on the *Codex Telleriano-Remensis*, 205; *Système graphique des Mayas*, 207; *Dict. de la Langue Maya*, 207, 427; his *Rapport* on the MS. Troano, 207; on the *Codex Perezianus*, 207; on the origin of Americans, 369; on the mound-builders, 401; *Bibl. Mex.-Guat.*, 172, 414, 423; on Mexican philology, 427; finds Greek roots, 427; *La lengua Quiché*, 427.
Brazil (country), rock inscriptions, 411.
Brazil (island), 31; bibliog., 49; origin of name, 50; on recent maps, 53; in Bianco and Pizigani maps, 54.
Brébœuf, the best observer of Indian traits, 317.
Breckenridge, H. H., on Indian populations, 437.
Breckenridge, *Louisiana*, 398.
Bredsdorff, T. H., on the Zeni, 112.
Breed, E. E., 409.
Brenden. *See* St. Brandan.
Brenner, Oskar, 98; *Grönland*, 85; his map of Olaus Magnus, 125; *Die ächte Karte des O. Magnus*, 125.
Brerewood, E., *Enquiries*, 369.
Bretschneider, E., *Fusang*, 80.
Bretton, Baron de, *Origines des peuples de l'Amérique*, 369.
Breusing, *Nautik der Alten*, 24.
Brevoort, James C., his likeness, x; his library, x, xviii; supt. of Astor Library, x; on Leclerc's *Bib. Am.*, xvi.
Briganti, A., xxix.
Brigham, W. T., *Guatemala*, 166, 197.
Brine, Lindesay, *Ruined Cities of Cent. Amer.*, 176.
Brinley, Geo., his library, xii.
Brinton, D. G., *Abor. Amer. Authors*, vii, 426; on Algonquin legends, 99; on Aztlan, 138; considers the Toltecs merely a dynasty, 141; on the Votanic Empire, 152; owns Berendt's collection, 164; portrait, 165; on Dr. Berendt, 164; on Central American MSS., 164; *Books of Chilan Balam*, 164; *Chac-Xulub-Chen*, 164; on editions of Landa, 165; on the *Popul Vuh*, 167; *Names of the Gods in the Kiché myths*, 167, 436; *Annals of the Cakchiquels*, 167, 425; on the ethnology of the Cakchiquels, 167; on Nicaraguan history, 169; on Brasseur, 171; on Landa's alphabet, 200; *Anc. Phonetic Alphabet of Yucatan*, 201, 427; *Graphic system of the Mayas*, 201; *Phonetic elements*, 201; *Ikonomic method*, 201; on the *MS. Troano*, 207; on Peruvian myths and literature, 270; on the effect of missions on the Indians, 318; "Archæology corrects Geology," 350; on Theo. Waitz, 378; on the Nicaragua footprints, 385; *Floridian Peninsula*, 391, 393; on shell heaps, 393; opposes Carr's views on the moundbuilders, 402; his own views, 402; *Rev. of data for the study of prehist. Chronology*, 412, 413; *Recent European Contributions*, 412; *Prehist. Archæology*, 412; on the use of mica, 416; *Lineal measures of Mexico*, 420; *Language of the palæolithic man*, 421; *Polysyntheism of Amer. languages*, 422; *Amer. Aborig. languages*, 425; *Chronicles of the Mayas*, 164, 425; *Gueguence*, 425, 428; the *Taensa Grammar*, 426; *Philos. Grammar of the Amer. languages*, 426; *Memoir of Berendt*, 164, 426; *Anc. Nahuatl Poetry*, 426; *Nahuatl language*, 426; *Cakchiquel language*, 427; *Xinca Indians*, 427; *Alaguilac language*, 427; on the Nicaragua tongues, 428; *Mangue dialect*, 428; *Lenape and their legends*, 325; *Nat. legend of the Chata-mus-ko-kee tribes*, 326; on the Shawanees, 326; on the mental capacity of the Indian, 328; *Myths of the New World*, 429; on sun-worship, 429; on phallic worship, 429; *American Hero-Myths*, 430; on monotheism, 430; *Religious sentiment*, 430; *Journey of the Soul*, 431; on Quetzalcoatl, 432.
Bristol, Eng., sends out expeditions westward, 75.
Britain, the Island of the Blessed, 15.
British Assoc. for the Adv. of Science, *Reports*, 442.
British Columbia mounds, 410.
British Sailor's Directory, 110.
Brixham cave, 390.
Broadhead, G. C., 409.
Brocard, *Descriptio*, xxi.
Brockhaus (Leipzig), *Bibl. Amér.*, xvii.
Brocklehurst, T. U., *Mexico To-day*, 177, 182.
Brodbeck, J., 109.
Bronze Age in America, 418.
Brooks, C. T., *Newport Mill*, 105.
Brooks, Ch. W., on the emigrations to China, 81.
Broughton, Richard, *Monasticon Brit.*, 83.
Brown, Dewi, 326.
Brown, D., on Georgia shell heaps, 393.
Brown, G. S., *Yarmouth*, 102.
Brown, John Carter, his library and its catalogues, xii.
Brown, J. Madison, on the ten lost tribes, 116.
Brown, Marie A., *Icelandic Discoverers*, 96.
Brown, Nathan, 81.
Brown, Dr. Robt., on the Eskimos, 107.
Brown, Thomas J., 407.
Browne, J. M., 328.
Browne, J. Ross, 328; *Apache Country*, 396.
Bruff, J. G., on rock inscriptions, 104, 410.
Brühl, Gustav, *Culturvölker*, 195, 411.
Brunet on De Bry, xxxii.
Brunn, *Bibl. Danica*, 40.
Brunner, D. B., *Indians of Berks County*, 325.
Brunson, Alfred, 408.
Bruyas, J., *Radices Verborum Iroquæorum*, 425.
Bryce, Geo., on Manitoba mounds, 410.
Brynjalfson, G., on Scandin. polar explorations, 62.
Buache, Philippe, 20; *Antillia*, 49; map of the route to Fousang, 79; on the Zeni, 112; *Sur Frisland*, 112.
Buchholtz, *Die Homerische Realien*, 13.
Büchner, L., *Der Mensch*, 383; *Man*, 381.
Buck, W. J., *Lappawinzo*, 325.
Buckland, Dr., *Reliq. Diluvianæ*, 390.
Buckland, Miss, 417.
Buckle, *Hist. Civilization*, 41.
Buddhist priest in Fousang, 78.
Buffon, *Epoques de la Nat.*, 44; on stone implements, 387; on bones from the Big Bone Lick, 388.
Bull, Henry, 323.
Bull, Ole, and the statue of Leif Ericson, 98.
Bull, Mrs. Ole, on the Northmen, 98.
Bulletin Archéologique Français, 441.
Bullock, Wm., collection of pottery, 418.
Bullock, W. H., *Six mos. in Mexico*, 180.
Bumstead, Geo., xvi.
Bumstead, Jos. (Boston), xv.

Bunbury, E. H., *Anc. Geog.*, 36; on Atlantis, 46.
Burder, Geo., *Welsh Indians*, 110.
Bureau of Ethnology, *Reports*, 439.
Burge, Lorenzo, *Preglacial Man*, 387.
Burgoa, F. de, *Geog. Descripcion*, 168.
Burkart, J., *Reisen in Mexico*, 183.
Burke, L., 46.
Burke, J., at Chichen-Itza, 190.
Burney, Jas., *Chron. History of Discovery*, xxxvi.
Burns, C. R., *Missouri*, 409.
Burr, R. T., 397.
Burton, R. F., *Ultima Thule*, 84, 85, 118.
Bus, land of, 47.
Buschmann, J. C. E., *Die Spuren der Aztekischen Sprache*, 138; *Die Lautveränderung Aztek. Wörter*, 138; his linguistic studies, vii, 425; *Die Aztekischen Ortsnamen*, 427; *Die Völker Neu-Mexicos*, 427.
Bussière, Th. de, *Le Pérou*, 275.
Bustamante, C. M. de, edits Leon y Gama's *Piedras*, 159; *Mañanas de la Alameda*, 179.
Butler, Amos W., *Sacrificial Stone*, 183.
Butler, J. D., *Prehistoric Wisconsin*, 408; on copper implements, 418; *Copper Age in Wisconsin*, 418.
Butler County, Ohio, mounds, 408.
Butterfield, C. W., 326; on the mounds, 407.
Buxton, *Migrations of the Ancient Mexicans*, 169.
Byles, Mather, xxviii.

Cabot, John, xxviii, xxxiv; in De Bry, xxxii; bust of, 56.
Cabot, J. Elliot, on the Northmen, 96.
Cabot, Sebastian, in Bristol, 50.
Cabrera, Felix, *Teatro Crit. Amer.*, 134, 191, 433.
Cacama, 149.
Cæsar, Julius (Englishman), xxiii.
Cahokia mound, 408.
Cakchiquels, in Guatemala, 150; their geog. position, 151; their ethnog. relations, 167; their dialect, 427.
Calancha, A. de la, *Coronica Moralizada*, etc., 264; *Hist. Peruanæ*, etc., 264.
Calaveras skull, 351, 352, 384; cut, 385.
Calaveras County (Cal.) cave, 390.
Calculiform characters, 201.
Calderon, J. A., on Palenqué, 191.
Calendar disks, 179; stone of Mexico, 159, 178.
California Acad. of Science, 438.
California, gold drift, 384; its Indians, 81, 328; an island in Sanson's map, 18; alleged tertiary relics, 351; mounds, 409; the original home of the Nahuas, 137, 138; linguistic confusion in, 138; pottery, 419; shell heaps, 393.
Callender, John, *Voyages*, xxxvi.
Callières, 303.
Camargo, D. M., *Tlaxcallan*, 163.
Campa, 428.
Campanius on the Sagas, 92.
Campbell, John, *Voyages*, xxxiv.
Campbell, John, 322, 369; on the linguistic affiliations with Asia, 77; on traditions of Mexico and Peru, 81; on the Davenport tablet, 404.
Camus, A. G., *De Bry*, xxxii.
Canaanites, ancestors of the Americans, 371.
Canada, Indians, 321; their arts, 416; library of Parliament, xviii; mounds, 410.
Canadian Antiquarian, 438.
Canadian Institute, 438; *Ann. Repts.*, 416.
Canadian Journal, 438.
Canadian Monthly, 438.
Canadian Naturalist, 438.
Canaries, called *Ins. Fortunæ*, 14, 27, 47; known to the Carthaginians, 25. *See* Fortunate Islands. Known to the Arabs, 47; island seen from, 48; *Noticias* by Viera y Clavijo, 48; in the Bianco map, 50, 54; in Sanuto's map, 53; in Pizigani's map, 54; relations with America, 116. *See* Guanches.
Canas, 226.
Candolle, De, *Géog. botanique*, 212.
Canepa map, 58.
Cañete, 275.
Canfield, W. H., *Sauk County*, 409.
Cannon, C. L., 397.
Canoes, 420; drifting, 78.
Canstadt, race of, 377.
Cantino map (1501–3), 53, 120.
Canto, Ernesto do, *Archivo des Açores*, xix; *Os Corte-Reaes*, xix.
Cape Cod, map of, 100; ancient hearth on, 105; map of shell heaps, 393.
Cape Prince of Wales, 77.
Cape de Verde islands known to the ancients, 14, 25.
Capel, *Vorstellungen des Norden*, xxxiv, 111.
Capella, Marcianus, *De Nuptiis*, etc., 36.
Caradoc, 109.
Cardiff giant a fraud, 41.
Carello y Ancona C., *La lengua Maya*, 427.
Carette, E., *Les temps antéhistoriques*, 421.
Carey, *Amer. Museum*, 110.
Cari, 229.
Caribs, origin of, 117; descendants of the Chichimecs, 136.
Carignano map (xiv. cent.), 53.
Carleton, J. H., 397.
Carli, Count Carlo, *Briefe über Amerika*, 20; controverts De Pauw, 370; *Delle Lettere Amer.*, 43, 44, 370.
Carlson, F. F., 84.
Carolina, Indians of, 325. *See* North Carolina.
Carolus, J., map of Greenland, 131.
Carr, Lucien, 412; on the position of Indian women, 328; *Crania of No. Amer. Indians*, 356; on the study of skulls, 373; on the Trenton implements, 337, 388; *Mounds of the Mississippi Valley*, 402; on Virginia mounds, 410.
Carrasco, C., *Ollanta*, 281.
Carrenza, L., 282.
Carrera, F. de, *Yunca Grammar*, 274, 279, 280.
Carreri, G. F. G., *Giro del Mondo*, 138, 158; attacked by Robertson and defended by Clavigero, 158.
Carriedo, J. B., on Oajaca, 168; *Los Palacios antiquos de Mitla*, 184.
Carrillo, Canon (now Bishop), Crescencio, his collection of MSS., 163; on Zumárraga, 203; *Yucatan*, 164, 166; *Geog. Maya*, 188; *La langua Maya*, 164.
Carrington, Margaret J., *Absaraka*, 327.
Cartailhac, E., 411, 442; *L'age de pierre*, 387.
Carter-Brown. *See* Brown, J. C.
Carver, Jona., on the mounds, 398.
Carthaginian discoveries, 14, 25.
Casa Blanca, 395.
Casa Grande of the Gila Valley, 395, 397.
Casas Grandes, 395.
Caspari, Otto, *Urgeschichte der Menschheit*, 81, 383.
Caspi, Marquis de, 205.
Cass, Lewis, on Heckewelder, 398.
Casselius, *De nav. fortuitis in Americam*, 75.
Cassell, J. P., *Observatio hist.*, 92.
Cassino, *Standard Nat. History*, 34, 412.
Castaing, Alphonse, *Les fêtes dans l'antiq. peruvienne*, 238; *Système relig. dans l'antiq. peruvienne*, 241.
Castañeda, drawings of Palenqué, 191, 192.
Castell, *America*, xxxiv.
Castelnau, F. de, *Expédition*, 271; on the antiquities of the Incas, 271.
Castillo, G., *Dict. de Yucatan*, 166.
Castillo y Orozco, E., *Vocab. Paéz-Castellano*, 425.
Cat, Edouard, *Découvertes Maritimes*, xxxvii.
Catalan map (1375), 49; cut, 55 (xiv. cent.), 53; carta nautica (1487), 58.
Catcott, A., *Deluge*, 370.
Catecismo de la doctrina Cristiana vii.
Catherwood, Frederick, *Anc. Mts. in Cent. Amer.*, 176.
Catlin, Geo., on the Welsh Indians, iii; finds analogies to Hebrew customs in the Indians, 116; *Lifted and subsided rocks*, 46; *Life among the Indians*, 369; *Last Rambles*, 369; *North American Indians*, 320; bibliog., 320; his *Indian Gallery*, 320; *Illustrations of the Manners*, etc., 320; portraits, 320; map of the Indian tribes, 321.
Cauchis, 226.
Cavate dwellings, 395.
Cave-bear epoch, 377.
Cave man, 377, 390; held to be speechless, 377; represented to-day by the Eskimos, 377; drawings of, 382.
Cavendish, xxxiv, xxxv, xxxvi; in *De Bry*, xxxii; in *Claesz*, xxxiii.
Caves in America, 389.
Caxamarca, 231.
Cayaron, *Chaumont*, 321; *Autobiographie*, 321.
Céledon, R., *Lengua gocejra*, 425.
Cellarius, *Notit. orb. antiq.*, 37, 45.
Céloron, 286, 310.
Cenecu, 394.
Central America, Scandinavians in, 99; map of, by Malte-Brun, 151; notes on the ruins, 176. *See* Yucatan, Guatemala, Nicaragua.
Central Ohio Scientific Assoc., 407.
Centralblatt für Bibliothekswesen, xvii.
Ceramic art. *See* Pottery.
Chac-Mool, statue, 180, 190, 434.
Chaca, 224; ruins, 224; described by Squier, 224.
Chaco Cañon, 395, 396.
Chadbourne, P. A., on shell heaps, 392.
Chahta, 402.
Chalcedony, 417.
Chalco conquered, 147.
Challenger ridge in the Atlantic, 44.
Chalmers, interpreting the geological record, 383.
Chama, 428.
Chamberlin, T. C., *Our glacial drift*, 332.
Champlain, his friendship with the Hurons, 285.
Chancas, 210, 227, 230.
Chanes, 135.
Changos, 275.
Chapultepec, Aztecs at, 142; sculptured likeness on its cliff, 148.
Charencey, H. de, *Mélanges*, vii; *La langue Basque*, 75; *Mythe de Votan*, 81; *Djemschid et Quetzalcohuatl*, 81; *Myth d'Imos*, 134; *Civilisation du Mexique*, 176; on the Maya hieroglyphics, 195; *Fragment d'inscription palenquéens*, 201; his linguistic studies, 425; *Mélanges*, 426, 427; *Chrestomathie de la langue Maya*, 427; *Des mots en lengua Maya*, 427; *Le Déluge*, 431.
Charlevoix, *Nouv. France*, ii; on Amer. linguistics, 424.
Charnay, Désiré, finds Buddhist traces in Mexico, 81; on the Toltecs, 141; *Cités et Ruines Amér.*, 176, 186, 195; *Le Mexique*, 176; papers in *No. Amer. Rev.*, 177; in *Tour du Monde*, 177; *Les Anc. Villes*, 177, 186, 195; *Ancient Cities*, 177; in Yucatan, 186; portrait, 187; his route in Yucatan, 188; at Chichen-Itza, 190; at Palenqué, 195.

Charton, Ed., *Voyageurs*, xxxvii.
Chase, A. W., 409.
Chata-mus-ko-kee tribes, 326.
Chatinos, 136.
Chautre, 442.
Chavanne, *Lit. Polar Regions*, 78.
Chavero, A., *Sahagún*, 157; *México á través de los Siglos*, 172; on the Calendar Stone, 179; his old view of Mexico, 182; *La Piedra del Sol*, 431.
Chaves, Francisco de, in Peru, 260.
Chekilli, 326.
Chellean period, 377.
Chelly, Cañon, cliff-houses, 395.
Cheney, T. A., 405.
Chenooks, 99. *See* Chinook.
Cherbonneau on Arab geographers, 48.
Cherokees, Timberlake on, 83; *Enquiry into the origin*, 370; held to be mound-builders, 402; council-house, 402; sources of their history, 326; their case with Georgia, 326.
Cherry, P. P., 403.
Chert, 417.
Chesapeake Bay, shell heaps, 392.
Chevalier, Michel, *Du Méxique avant et pendant la Conquête*, 172, 176; *Le Méxique*, 172.
Chiapaneca language, 425.
Chiapas, 433; MS. concerning, 168; sources of its history, 168; map, 188; ruins in, 191.
Chibchas, 282, 428; their language, 425; origin of, 80; position of, 210.
Chicama, 276.
Chi-Chen, 186.
Chichimecs, barbarians or a tribe, 136; etymology, 136; in Mexico, 139; invade Anáhuac, 142; their stock, 142; adopt the Nahua tongue, 142; form alliances, 142; authorities, 147; anc. MS. on, 157; MS. annals, 162; genealogy of their chiefs, 162; their language, 426.
Chichen-Itza, 434; position of, 151, 188; Charnay at, 186; Le Plongeon at, 186, 190; accounts of, 190; ornaments, 190; statue of Chac-Mool, 190; wall paintings, 190; hieroglyphics at, 200.
Chiclayo, 276.
Chicomoztoc, 138.
Chil, Dr., on Atlantis, 46.
Chilca, 277.
Chillicothe, map, 406.
Chimalpain, Domingo, notes on Mexican history, 162.
Chimalpain, A. M., *Crónica Méx.*, 164.
Chimborazo, 275.
Chimus, 227, 275; burial habits, 276; character of the people, 277.
Chinantecs, 136.
Chinchas, 227, 277.
Chinese emigration, 369; in Peru, 82. *See* Fousang.
Chinese Recorder, 80.
Chinook jargon and language, 422, 425.
Chippewas, 326.
Chiquimala, 168.
Chiquita language, 425.
Christianity introduced into Greenland, 62.
Christy collection, 444.
Chocope, 276.
Cholula, temple built by the Olmecs, 137; a shrine, 140; views, 177, 178; account of, 178; when built, 178; dimensions, 178; arms of, 178; restorations, 178; early mentions, 180; maps, 180; communal house at, 175.
Chontales, 136.
Chucuito, ruins at, 245.
Chumeto language, 426.
Chun-kal-cin, 187.
Chuquisaca, 278.
Churchhill's *Voyages*, xxxiv.
Cibola, seven cities of, 138, 396; held to be Fousang, 80; map of, 394.
Cicero, 7; *Tusculan Disputations*, 9; *Respublica*, 9; on geog. questions, 36; dream of Scipio, 36.
Cicogna, *Bibl. Veneziana*, xxix.
Cicuye (Pecos), 396.
Cieza de Leon, P., as an authority on anc. Peruvian history, xxxv, 259.
Cimmerians, 13.
Cincinnati, Nat. Hist. Soc., 407, 438.
Cincinnati tablet, 404; cut, 404; mounds, 408.
Circleville, Ohio, mounds, 407.
Cisneros, Garcia de, 155, 276.
Cisternay du Fay, xxxii.
Ciudad Rodrigo, A. de, 155.
Civilization of the ancient nations of middle America, 173; bibliog., 176.
Claesz, C., coll. of voyages, xxxiii.
Clallam language, 425.
Clark, Gen. J. S., map of the Iroquois country, 323.
Clark, J. V. H., *Onondaga*, 325.
Clark, W. P., *Indian Sign-language*, 422.
Clarke, Hyde, *Legend of Atlantis*, 43, 383; *Khita-Peruvian Epoch*, 82; *Researches*, 369.
Clarke, P. D., *Wyandotts*, 327.
Clarke, Robt., his book-lists, xv; on the Cincinnati tablet, 404.
Clarke County, Ohio, mounds, 408.
Claus, C., *Den Grölandske Chronica*, 85.
Clavigero, *Storia del Messico*, ii; his beginning of Mexican hist., 155; on the sources of Mexican history, 158; describes the material, 158; belittled by Robertson, 158; portrait, 159; his bibliog., 413.
Clavus, Claudius, his map, 114, 117; facs., 118, 119.
Clay, moulding in, 419; masks of, 419.
Claymont, Del., deposits, 342.
Cleomedes, 4.
Cleomedes, *De sublimibus circulis*, 8, 35.
Clermont, college of, ii.
Cliff-dwellers' pottery, 419; their houses, 395.
Climate, influence on man, 372, 378; theories of changes in, 387.
Clint, Wm., 322.
Clinton, De Witt, on the Northmen remains, 102; on mounds, 398; *Antiq. of Western N. Y.*, 414.
Clodd, Edw., 387; *Childhood of the world*, 412.
Cloth. *See* Textile arts.
Cluverius, 43; *Introd. in univ. geog.*, 40.
Coahuila cave, 390.
Coate, B. H., *Discourse*, 369.
Cobo, B., *Lima*, 274.
Cochrane, J., 408.
Cocomes, 152.
Codex Chimalpopoca, 135; named by Brasseur, 158; acc. of, 158; copies, 158; *Hist. de los Reynos de Colhuacan*, 158; *Anales de Cuauhtitlan*, 158; owned by Aubin, 162.
Codex Cortesianus, 206, 207.
Codex Flatoyensis, 88, 92.
Codex Gondra, 158.
Codex Mendoza, 203.
Codex Mexicanus, 162, 207.
Codex Perezianus, 207; cut, 207.
Codex Troano, 205; ed. by Brasseur, 207.
Coguludo, *Yucathan*, 165; *Los tres Siglos en Yucatan*, 165.
Cohn, Albert, xxxii.
Cohuixcas, 136.
Coins, Roman, found in America, 41.
Colaeus at Gades, 25.
Colden, Cadwallader, among the Mohawks, 289; *Five Indian Nations*, 324; editions, 324; his career, 324.
Colhuacan, founded, 139; seat of power, 139; its league, 140.
Colhuas, 136, 139; vassals of the Chichimecs, 142.
Colijn, M., *Journalen*, xxxiv.
Collahuaso, J., *Inca Atahualpa*, 268.
Collas, 226.
Collingwood, J. F., 443.
Colorado Cañon, explored by Powell, 396.
Colorado caves, 391.
Colorado, expeditions in, 395.
Columbia River Valley, centre of migrations, 381.
Columbus, Christopher, acc. of his voyages, xix, xxiv, xxxiv, xxxvi; believed he found Asia, 1; inherited the idea of the sphericity of the earth, 31; inspired by anc. writers, 40; his idea of the width of the Atlantic, 51; Toscanelli's letter to him, 51; in Iceland, 61; *Tratado de las cinco zonas*, 61; supposed knowledge of the Norse discoveries, 96; efforts to canonize him, 96; attacks on his character, 96; meets a Maya vessel, 173; his Garden of Eden, 372.
Columbus, Ferd., his library, vi; life of C. Columbus, xxxiv.
Comanches, 327; vocabulary, 440.
Comfort, A. J., 409.
Comité d'Archéologie Américaine, its members, 441; *Annuaire*, 441; *Actes*, 441; *Mémoires*, 441.
Commelin, Isaac, *Oost-Indische Compagnie*, xxxiv.
Communal customs, 420; life, 175, 176.
Conant, A. J., 409; *Footprints of a vanished race*, 400.
Conant, H. S., 177.
Concacha, ruins, 220, 221.
Conchucus, 227.
Condamine, C. M. la, *Voyage*, 271; on Peruvian monuments, 271.
Congrès International des Américanistes, 442; its sessions and *Comptes rendus*, 442.
Congrès Internat. d'Anthropologie, 442.
Connecticut Acad. of Arts, etc., 438.
Connecticut Indians, 323.
Conover, G. S., on the Seneca burial mound, 405.
Contractus, H., *De util. astrolabii*, 37.
Conybeare, C. A. V., *Place of Iceland*, 85.
Cook, G. H., *Reports*, 388.
Cooke, J. J., his library, xii.
Cooley, W. D., *Maritime Discovery*, 72, 93.
Copan (ruins), 135; position of, 151; plan, 194; statues, 196; early accounts, 196; seen by Stephens, 196; plans, 197.
Copan (town), 196.
Cope, Edw. D., *Mesozoic and Cænozoic of N. America*, 353; on cave deposits, 390.
Copenhagen, Royal Soc. of Northern Antiquities, 93; its publications, 94.
Copper, mining, 417; tools of, 417, 418; moundbuilders' use of, 408.
Copway, Geo., *Ojibway nation*, 327.
Cora, Guido, 444; *Precursori di Colombo*, 115.
Coras, 136.
Cordeiro, L., *Les Portugais dans la découverte de l'Amérique*, xix.
Cordoba, Andrés de, 155.
Cordova, H. de, first sees the Yucatan ruins, 173.
Cordova y Salinas, D. de, 264.
Coreal, François, *Voyages*, 145.
Corlear, 289.
Cornelius, E., 410.
Cornell University, Sparks's library at, vi.
Corni, C. M., 263.
Corroy, F., 193.
Cortambert, Richard, *Voyages*, xxxvii.
Cortereal, John Vas Costa, at Newfoundland, 75, 125.
Cortereal, Gasper, xix, xxxiv.
Cortereals, the, xix, xxxiv.
Cortés, his lost first letter, xxi; his letters, xxv; sought a passage to Asia, 1; arrives on the coast (1579), 149; hailed as Quetzalcoatl, 149; his statements about the native displays, 173;

his knowledge of Palenqué, 191; sends feather work to Charles V, 420.
Coruña, Martin de, 155.
Corvo, equestrian statue, 49.
Coryat, *Crudities*, 32.
Cosmas, 30, 38.
Cosmogonists, 383.
Cosmology of the Middle Ages, 36.
Coursey, Col. Henry, 304.
Court, Dr. J., his library, xiii.
Cousin, on the So. Amer. coast, 76.
Cowles, Henry, *Pentateuch*, 374.
Cox, *Mythology of the Aryan nations*, 430.
Coxe, Daniel, *Voyages*, xxxv; *Carolana*, 326.
Cozumel, ruins in, 185, 188, 434.
Cozzen, *Marvellous Country*, 396.
Craniology, diversified in America, 356; science of, 373; capacity no sure guide to intelligence, 373; kinds of, 375; long-headed, or dolichocephalic, 375; short-headed, or brachycephalic, 375; medium, or mesocephalic, 375; Cromagnon skull, 377, 389; Calaveras skull, 384, 385; Trenton gravel skulls, 388; Enghis skull, 389; Neanderthal skull, 389, 390; Hochelagan skull, 389; mound-builders' skulls, 399, 400, 403.
Crantor, commentator on Plato, 41.
Crantz, David, *Grönland*, 86; editions, 86; on Hans Egede, 108.
Crates of Mallus, 7; his globe, 9.
Crawford, Chas., *Indians descended from the Ten Tribes*, 116.
Crawford and Balcarres on De Bry, xxxiii.
Crawfordville, mounds, 400.
Cresson, H. T., finds palæolithic implements, 341; discoveries at Naaman's Creek, Del., 363; finds piles, 364, 395; *Aztec music*, 420.
Crevaux, J. (with P. Sagot and L. Adam), *Langues de la région des Guyanes*, 425.
Croghan, Col. George, 318.
Croll, James, *Climate and Cosmology*, 383, 387; his theory of climatic changes, 387; *Climate and Time*, 387; controversy with Newcomb, 387.
Cromagnon skull, 377, 389; cut of, 377; of the cave race, 377.
Cromlechs in Peru, 214.
Crook, G., on making arrow-heads, 417.
Crosby, Dr. Howard, on Geo. H. Moore, xii.
Cross, the, among the Mayas and Nahuas, 195; held to be a symbolized fire drill, 195; the symbol of life, 195.
Crow Indians, 327.
Crowninshield, E. A., his library, xii.
Ctesias, *India*, 39.
Cuella, Juan de, 265.
Cuesta, Fernandez, *Enciclopedia de viajes*, xxxvii.
Cuextecas, 136.
Cuitatecs, 136.
Cuitlahuac conquered, 147.
Cukulcan, 434.
Cumanagota, 428.
Cuming, F., *Tour*, 398.
Cumming, Thos., 306.
Cuoq, J. A., on the Algonquin dialects, 425; *Etudes*, 425; *La langue Iroquoise*, 425.
Currency. *See* Money.
Cuscatlan, 168.
Cushing, F. H., on the habitation of man as affected by surroundings, 378; on the Pueblo architecture, 395; on the Zuñi, 396; on N. Y. mounds, 405; *Pueblo pottery*, 419, 440; *Zuñi fetiches*, 440.
Cushites of Egypt, 41.
Cusick, David, *Anc. History of the Six Nations*, 325.
Cutler, Manasseh, on the Ohio mounds, 407.
Cutter, Chas. A., edits Sparks's Catalogue, vii; on bibliog. of De Bry, xxxii.
Cutts, J. B., 409.
Cuvier opposes Lamarck, 383.
Cuyahoga Valley mounds, 408.
Cuzco, great wall in, 220; its fortress, 220; plans of, 229; old view, 229; zodiac of gold found at, 235; foundation of the city, 246.

D'Arbois de Jubainville, H., *Litt. Celtique*, 50; *Litt. Epique d'Irlande*, 50.
D'Autun, Honoré, *Imago Mundi*, 48.
D'Avalos y Figueroa, Diego, *Miscelanea Austral*, 280.
D'Avezac, *Iles d'Afrique*, 43, 47; *Les iles de St. Brandan*, 47; *Les iles fantastiques*, 43, 47; on the Laon globe, 56.
Da Gama, xxviii.
Dabry de Thiersant, *Origine des Indiens*, 77, 176.
Dacotahs, 327; bibliog., 424; mythology, 431; mounds, 409; linguistic connection with Asia, 77. *See* Sioux.
Dahlman, F. C., *Dänemark*, 84.
Dahlmann, *Forschungen*, 99.
Dalin, Olaf von, *Svearikes Hist.*, 84.
Dall, W. H., on the peopling of America, 76, 77, 78; on the Polynesians, 82; on the Eskimos, 107, 437; *Alaska*, 107; on the origin of the Americans, 369; against the autochthonous theory, 375; on Alaska caves, 391; on shell heaps, 393; on Aleutian islands, 393; edits Nadaillac, 412, 415; on prehistoric man, 412; on Indian masks, 419; on the Alaska tribes, 328, 437.
Dallas, W. S., 383.
Dalrymple, Alex., *Voyages*, xxxv.
Dalrymple, *Bibl. Amer.*, ii.
Daly, D., 432.
Damariscotta, Me., shell heap, 392.
Dammartin, *La Pierre de Taunston*, 104.
Danforth, Dr., on Dighton Rock, 103.
Danilsen, A. F., 410.
Danish peat beds, man of, 395.
Danmar, 31, 47, 49.
Dapper's collection, xxxiv.
Daremburg and Saglio, *Dict. de l'Antiq.*, 36.
Dartmouth College founded, 322.
Darwin, Chas., *Descent of Man*, 375; on the degeneracy of the savage, 381.
Darwinism, 383.
Dasent, G. W., *Burnt Njal*, 85; *Norsemen in Iceland*, 85; introd. to Vigfusson's *Icelandic Dict.*, 88.
Daux, A., *Etudes préhistoriques*, 416.
Davenport Academy of Sciences, 438.
Davenport tablets, 404; controversy, 404.
Davilla Padilla, *Prov. de Santiago*, 156; *Varia hist.*, 156.
Davis, Asahel, *Antiq. of Cent. Amer.*, 176.
Davis, A. C., 418.
Davis, And. McF., on Indian games, 328.
Davis, E. H. *See* Squier, E. G.
Davis, Horace, *Japanese blood on our N. W. coast*, 78.
Davis, John (navigator), xxxiv; in Davis Straits, 107.
Davis, John (Judge), on the Dighton Rock, 104.
Dawkins, W. B., on the Basques, 75; on the Eskimos, 105; on the tertiary man, 353; *Early man in No. America*, 353; *Early man in Britain*, 356; on prehistoric study, 376; on the antiquity of man, 383; on the Calaveras skull, 385; on man and extinct animals, 388; *Cave Hunting*, 390.
Dawson, Sir J. W., on the Skrælings, 105; on the early migrations, 138; follows Morgan in his communal theory, 176; on the unity of the human race, 374; believes the biblical account literally, 375; portrait, 380; on No. Amer. migrations, 381; *Fossil Men*, 382, 383, 416; advocates the theory of degeneracy, 382; *Nature and the Bible*, 382; *Story of the Earth*, 382, 386; *Origin of the World*, 382; on the Calaveras skull, 385; on the moundbuilders, 401.
Day, St. John V., *Prehistoric Use of Iron*, 41, 418.
Dayton, E. A., 410.
De Brosses, *Hist. des Navigations*, xxxv.
De Bry, Theodore, portrait, xxx; *Voyages*, xxxi; his heirs, xxxi; *Collectiones peregrinationum*, xxxi; bibliog., xxxii; *Elenchus*, xxxii; counterfeit eds., xxxii; his other publications, xxxiii; abridgments, xxxiii; original Wyth drawings, xxxiii.
De Bure on De Bry, xxxii.
De Candolle, *Géog. botanique*, 117. *See* Candolle.
De Costa, B. F., *Pre-Columbian Discovery*, 97; *Notes on a Review*, 97; *Northmen in Maine*, 97; *Sailing Directions of Hudson*, 97; *Columbus and the geographers of the North*, 97; on Dighton Rock, 104; on the Eskimos, 105; on the Zeni, 115.
De Courcy, *Hist. Chh. in America*, 69.
De Ferry, H., *Le Maconnais préhistorique*, 357.
De Forest, *Indians of Conn.*, 323.
De Haas, W., *Archæology of the Mississippi Valley*, 437.
De Hart, J. D., 408.
De Hart, J. M., 409.
De la Porte, Abbé, *Voyageur Français*, xxxvi.
De Laet, on Madoc, 109; on the Zeni, 111. *See* Laet.
De Leyre, xxxv.
De Pauw, C., his depreciation of American products, 370; *Recherches Philos.*, 370; editions, 370; *Defenses*, 370.
De Tocqueville on the Indians, 320.
Dean, C. K., 409.
Deane, Chas., his library, x; his likeness, xi; on James Lenox, xi; on E. A. Crowninshield, xiii; on the Northmen, 98.
Degrees, length of, 32.
Delafield, John, *Antiq. of Amer.*, 372.
Delamar, island, 49.
Delaware River gravels, 360, 361, 388. *See* Trenton.
Delawares, in Penna., 306; in Pontiac's conspiracy, 316; sources of their history, 325; their language, 423; their legends, 431.
Deluge, myths of the, 431.
Deman, island, 49.
Demmin, A., *La Céramique*, 419.
Demons, isles of, 32.
Denis, Ferd., *Arte plumaria*, 420.
Dennie, *Portfolio*, on the mounds, 398.
Denton, *Desc. of N. Y.*, vi.
Derby, J. C., *Fifty years*, viii.
Desimoni, Cornelio, on the Atlantic islands, 47; *Le carte nautiche del medio evo*, 55; on the Zeni, 113.
Desjardins, Ernest, *Rapport sur Harrisse*, v; *Pérou avant la conquête*, 270.
Desnoyers on tertiary man, 387.
Desor, Ed., *Palafittes*, 395.
Deuber, F. X. A., *Gesch. der Schiffahrt im Atl. Ozean*, 60.
Deutsch, Manuel, xxvii.
Deutsche Gesellschaft für Anthropologie, 443; *Correspondenzblatt*, 443; *Allgemeine Versammlung*, 443.
Devaux, V., 442.
Devereux on Arkansas pottery, 419.
Dewitt, S., 405.
Dexter, Henry M., his library, xvii;

his bibliog. of Congregationalism, xvii.
Dhoulcarnain, 49.
Dialects, 422. *See* Linguistics.
Diaz, Bernal, his stories of regal pomp, 173; as a chronicler, 153; facs. of his MS., 154.
Dibden on De Bry, xxxii.
Didron, Aîné, *Annales Archéologiques*, 441.
Dieskau, Baron, on his Indian allies, 296.
Dighton Rock, held to be Phœnician, 41, 104; Rafn's view of it, 101; various drafts of its inscription, 103; account of, 104; work of the Indians, 104; of Siberians, 104; of Northmen, 104; of Roman Catholics, 104.
Dille, I., 407, 410.
Diman, J. L., on the unhistoric quality of the sagas, 97.
Dimning, E. O., 408.
Dinwiddie, Gov., on the Indians as allies, 296.
Dionne, N. E., 317.
Diodorus Siculus, 14.
Diogenes Laertius, 3.
District Historical Soc., 407.
D'Orbigny, A., *L'homme Americain*, 412; on the religion of the Quichuas, 436.
Doddridge, Jos., *Settlement and Indian wars*, 319; his career, 319.
Dodge, David, 347.
Dodge, J. R., *Red Man*, 326.
Dodge, Wm. (Cincinnati), xv.
Dodsley, *Voyages*, xxxvi.
Dolfus, Montserrat and Pavie, *Mémoires*, 170.
Dolphin ridge in the Atlantic, 44.
Domenech, Abbé, *Seven years' residence*, 80; *Manuscrit pictographique*, 163; on the American man, 369.
Donaldson, Thomas, *Geo. Catlin's Indian Gallery*, 320.
Doncker, H., map of Greenland, 131.
Dongan, Gov., 304.
Donis, his Ptolemy map, 114; sketch of northern parts, 122.
Donnelly, Ignatius, *Atlantis*, 16, 45, 46.
Dorman, R. M., *Primitive Superstition*, 431.
Dörpfeld, *Metrologie*, 5.
Dorr, H. C., 327.
Dorsey, J. O., 423; on the Omahas, 327.
Douglass, A. E., 393.
Doutrelaine, *Mitla*, 170, 185.
Doyle, *English in America*, 325.
Drake, Daniel, *Cincinnati*, 398.
Drake, E. C., *Voyages*, xxxvi.
Drake, Sir Francis, xxxiv, xxxv, xxxvi, xxxvii; on De Bry, xxxii; on Claesz, xxxiii.
Drake, F. S., his deceptive *Indian Tribes*, 320, 441.
Drake, Samuel G., dealer in Americana, xv; dies, xv; his library, xv; sold to Conn. Hist. Soc., xv; sold coll. of school-books to the Brit. Mus. xv; his books on the Indians, 318; *Aborig. Races of No. America*, 318.
Draper, *Intellectual development of Europe*, 176.
Draudius, *Bibl. Classica*, i.
Dresden Codex, 204, 205; ed. by Förstemann, 205.
Drogeo, 72, 128.
D'Urban, 43.
Du Perier, *Voyages*, xxxv.
Du Pré, L. J., on a prehistoric threshing floor, 210.
Ducatel, J. T., on shell heaps, 392.
Duchateau, Julien, *L'écriture calciliforme des Mayas*, 201.
Dufossé, *Americana*, xvi.
Dunbar, Jas., *Hist. of Markland*, 398.
Dunbar, J. B., 327.
Dunbar, W., on the Indian sign language, 437.
Dunn, Oscar, 60.
Dunning, E. O., 410.
Dupaix, on Mitla and Palenqué, 192; *Antiq. Méxicaines*, 192; on the monuments of New Spain, 203.
Duponceau, P. E., 423; *Mém. sur le système grammatical*, 425.
Durán, Diego, *Las Indias*, 155.
Duro, C. F., 444.
Duro, Ferd., *Disquis. Nauticas*, 75.
Dury, John, 115.
Dussieux, L., *Hist. de la Géog.*, 94.
Dutch, early, in Newfoundland, 75.
Dwight, Theo. F., xv.

Eames, Wilberforce, vi; bibliog. of Ptolemy, 35; continues Sabin's *Dictionary*, 414.
Earl, title of, 61.
Earth, spherical theory, 2; the ancients' notion of its size, 4, 8; measured, 4; distribution of land and sea, 6; shape of the part known, 8; notions respecting the unknown parts, 8; a supposed southern continent, 9; size supposed in the Middle Ages, 30; rectangular map of, 30; sphericity taught in the Middle Ages, 31; the word "rotundus" as applied, 36; its sphericity ignored by the Church Fathers, 37; acknowledged by others, 37; theories respecting its form, 38; a plane in Homer, 39.
Easter Island, 81.
Eastman, Mrs. Mary, *Dacotah*, 327, 431.
Ebeling, Professor, his likeness, iii; library, iii; his own books on Amer. history, iii.
Ebn Sâyd, 47.
Ecker, *Archiv*, 443.
Ecuador, map, 209.
Eden, Richard, *Decades*, xxiii; *Hist. of Travayle*, xxiii.
Eden, Garden of, 372.
Edkins, J., 78.
Edrisi, *Geography*, 33, 48, 72; on Arab voyages on the Atlantic, 72; his map, 72.
Edwards, Jona., on the lost tribes, 116; on linguistic traces, 116; *Muhhekaneew Indians*, 116; on the Mohegan language, 423.
Effigy mounds, 408.
Egede, Hans, in Greenland, 69, 107; *Grönland*, 107; facs. of its title, 108; bibliog. 108; his map, 131.
Egede, Paul, in Greenland, 69; *Grönland*, 108, 131; his map in facs., 131; acc. of, 131.
Eggers, H. P. von, *Om Grönlands österbygds*, 108; *Ueber die wahre Lage des Ostgrönlands*, 108; on the Zeni, 111.
Egils saga, 88.
Eguiara y Eguren, *Bibl. Mex.* 413.
Egyptian migrations, 372; visits to America, 41; analogies in Mexico, 183; built the mounds, 405.
Eichthal, Gustave de, on Fousang, 80; *Les origines Bouddhiques de la civilisation Amér.*, 80; *Races océaniennes*, 82.
El-Ghanam, 47.
Elephant mound, 409.
Eliot, John, apostle, on Jews in America, 115; his letters, 322; *Brief Narration*, 322; *Grammar Mass. Indian Language*, 423.
Eliot, Samuel, *Early relations with the Indians*, 323.
Eliot, Samuel A., iii.
Ellicott, Andrew, on mounds near Natchez, 398.
Elliott, C. W., *New England*, 96.
Elliott, E. T., 391.
Ellis, F. S., *Americana*, xvi.
Ellis, Geo. E., on Sparks, vii; "The Red Indian of North America," 283; *Red Man and White Man*, 322; on the Indians of Mass., 323.
Ellis, Robt., *Peruvia Scythica*, 82, 241, 281.
Ellis and White, xvi.
Elton, C. A., *Remains of Hesiod*, 2.
Elysian Fields, 12, 13.
Emblematic mounds, 400.
Emerson, Ellen R., *Indian Myths*, 431.
Emery, Geo. E., on the Zeno map, 115.
Emory, W. H., *Mil. Reconnoissance*, 327, 396; on the Mexican boundary survey, 396, 440.
Enciso, M. F. d', *Suma de Geog.*, 173.
Engel, E. B. d', *Essai*, 370.
Enghis skull, 389.
England, archæological studies in, 442.
English colonists in North America, their treatment of the Indians, 283; compared with the French, 298; exceed the French in number, 299; number of, 310.
Engroneland, 72. *See* Greenland.
Engronelant sometimes made distinct from Greenland, 121, 122.
Enriques, Martin, tries to gather Mexican relics, 155.
Ens, Gasper, *West-und-Ost Indischer Lustgart*, xxxiii.
Eocene man, 387.
Epstein, I., 426.
Equinoxes, precession of, 387.
Eratosthenes, on the form of the earth, 3; measured it, 4; *Hermes*, 7; his view of the habitable earth, 9; and the western passage, 27; his age, 34.
Eric Upsi, Bishop, 65.
Eric the Red, his career, 61; saga, 85, 90, 94.
Erizzo, *Le Scoperte Artiche*, 127.
Erslef, Ed., on the Zeni, 114.
Erytheia, 14.
Escoma (Bolivia) ruins, 250.
Escudero, *Chihuahua*, 396.
Eskimos, their boats drift to Europe, 61; appear in Greenland, 68, 107; near Behring's Straits, 78; described by La Peyrère, 86; known to the Northmen as Skrælings, 105; bibliog., 105, 108; their former southern range, 106, 336; their intellectual char., 106; their migrations, 106, 321; their skulls, 106, 377; bone implements, 106; their linguistic differences, 107, 425; missions among, 108; De Pauw on, 370; allied to the cave race of Europe, 377, 390; of the primitive race of America, 336, 367; their stone implements, 336.
Esparza, M. de, *Informe*, 183.
Espinosa, J. D., 427.
Essex Institute, 438.
Estes, L. C., 409.
Estete, M., 277.
Estienne, Jean d', on Atlantis, 45.
Estotiland, 72, 128; identification of, 114; not America, 111, 115; was America, 114, 115.
Eten, 277.
Eternal Islands, 47.
Ethnographical collections, 412.
Ethnological Journal, 442.
Ethnological Society, *Journal*, 442; *Transactions*, 442.
Etowah valley mounds, 410.
Ettwein, *Traditions of the Indians*, 325.
Etzel, Anton von, *Grönland*, 107.
Eudoxus, 35.
Eumenius, 47.
Euphemus in the Atlantic, 26.
Euripides, *Helena*, 13; *Hippolytus*, 14.
Euseues, 22.
Euthymemes, 26.
Evans, John, *Anc. stone implements*, 384.
Evans, A. S., *Our Sister Republic*, 180.
Everett, Alex. H., in Spain, iii; on the Norse voyages, 94.
Everett, Edw., on the Norse voyages, 94.

Everett, Wm., on the Northmen, 98.
Evers, E., *Archæology of Missouri*, 419.
Ewbank, T., *Rock-writing*, 105; *Indian Antiq. and Arts*, 416.
Eyrbyggja Saga, 83.

Fabricius, *Dissert. Crit.*, 372.
Fabulous islands, 46. *See* Atlantic islands.
Faidherbe, Gen., 25.
Fairfield County, Ohio, mounds, 408.
Falb, R., *Land der Inca*, 275.
Falconer, Hugh, *Palæontol. Memoirs*, 384; *Primeval Man*, 390.
Falconer, Richard, *Voyages*, 318.
Faliès, L., *Populations primitives de l'Amérique*, 415.
Fall River, "Skeleton in Armor" found, 105.
Fancourt, C. G., *Yucatan*, 188.
Farcy, Ch., 192; *Antiq. de l'Amérique*, 77.
Faria y Sousa, *Hist. Portuguezas*, 49.
Faribault, G. B., *Catalogue*, iv.
Farnham, Luther, *Private Libraries of Boston*, x, xvii.
Farnum, Alex., *Northmen in Rhode Island*, 102.
Faroe Islands, 114.
Farquharson, R. J., 404.
Farrar, *Families of Speech*, 75.
Farrer, J. A., *Primitive Manners*, 379.
Favyn, Andre, *Navarre*, 75.
Fay, Jos. S., 99.
Fay, S. L., 403.
Feather work, 420.
Fechner, *Centralblatt*, 443.
Fegeux, *Quemada*, 183.
Fejérvary Codex, 205.
Fernandez, Melchior, 279.
Ferrer de Conto, José, *La Marina real*, xxxvii.
Feudal system in anc. Mexico, 173.
Feyerabend, Sigmund, portrait, xxxi.
Field, Thomas W., *Ind. Bibliog.*, xiii, 414; his *Catalogue*, xiii, 414.
Field of Delight, 32.
Fifteenth-century maps, 53, 57.
Figueredo, J. de, 279.
Figuier, Louis, *L'homme primitif*, 388, 412; *Human Race*, 412; *World before the Deluge*, 375, 412.
Finæus, Orontius, his map, xxiv.
Finlay, J. B., *Wyandotte Mission*, 116.
Finley, E. B., 403.
Finley, I. J., *Ross County, Ohio*, 408.
Finns build the mounds, 405.
Fiorin, Nic., his map, 58.
Fischer, Abbé, edits Ramirez's Catalogue, 414; *Bibl. Mejicana*, xiii, 414.
Fischer, Theobald, edits Ongania maps, 47.
Fischer, *Origine des Américaines*, 76.
Fish-hooks of bone, 417.
Fish-spears, 360.
Fish-weirs, 365.
Fiske, Moses, 371.
Fiske, Willard, *Bibliog. Notices*, 93.
Fitch, John, his map on the mounds, 398.
Fitzer, W., xxxi; *Orient. Indian*, xxxiii.
Five Nations. *See* Iroquois.
Flat-heads, 425.
Flath Inis, 32.
Flatoyensis Codex, 99.
Fleming, Abraham, *Registre of Hystorie*, 21.
Fletcher, Alice C., *Indian Education and Civilization*, 321; her studies on the Sioux, 327; *Omaha Tribe*, 327.
Fletcher, Robt., *Prehist. trephining*, 440.
Flint, Earl, on the Nicaragua footprints, 385; on Palenqué, 191.
Flint chips, 388. *See* Stone.
Flint folk, 416; in America, 417.
Flora, that of South America connected with Polynesia, 82.
Flores, I. J., *La lengua del Regno Cakchiquel*, 427.
Florida, calcareous conglomerate, reported human remains in, 389; migration from, to Mexico, 136; mounds, 410; pile-houses in, 393; pottery, 419; shell heaps, 393.
Flower, W. H., 106; on the study of skulls, 373.
Folsom, Geo., on the Northmen, 96; on the Zeni, 112.
Fondouce, C. de, *Les temps préhistoriques*, 390.
Fontaine, Edw., *How the World was Peopled*, 374; on the recent origin of man, 382.
Fontpertuis, A. F. de, *Canaries*, 116; on the mounds, 403.
Footprints in geological times, 385; cut of one, 386.
Forbes, D., 442.
Forbiger, *Handbuch der Alten Geog.*, 4, 36.
Force, M. F., on the mounds, 402.
Force, Col. Peter, his library, vi, 171; dies, vi; tributes to, vii.
Forged relics made in Mexico, 180.
Formaleoni, *Saggio sulla Nautica Ant. dei Veneziani*, 47.
Forrey, Samuel, 374.
Forshey, C. G., 409.
Förstemann, Ed., edits the *Dresden Codex*, 205; *Die Maya Handschrift*, 205; *Der Maya Apparat in Dresden*, 205; *Erläuterungen zur Mayahandschrift*, 202, 205.
Forster, J. R., *Geschichte der Entd. und Schifffahrten*, xxxvi; *Entdeckungen im Norden*, 92; on the Zeni, 111.
Fort Ancient, Ohio, 408.
Fort Chartres, last French flag at, 316.
Fort Duquesne, 310.
Fortia, 43.
Fortunate Islands, 15, 22, 27, 47, 48. *See* Canaries.
Fossey, M., *Le Méxique*, 180, 184.
Foster, G. E., *Se-quo-yah*, 326.
Foster, J. W., *Prehistoric Races*, 401, 412; on the moundbuilders, 401, 409; (with Whitney), *Geology of Lake Superior*, 418.
Four Worlds, doctrine of, 11.
Fourteenth-century maps, 55.
Fousang, in Buache's map, 79; discussions on, 81; voyage to, 78.
Fox, A. L., on early navigation, 81.
Fox, Luke, on the Zeni, 111.
Fraggia, *Coleccion de MSS.*, ii.
Frampton, John, translates Monardes, xxix.
France, archæological efforts in, 441; Congrès archéologique, 441; Société Américaine, 441; *Annuaire*, 441; *Archives*, 441; *Revue Américaine*, 441; *Actes de la Soc. d'Ethnographie*, 441.
Franciscans in Mexico, 154.
Franciscus, E., *Ost- und West-Indischer Lustgarten*, 370.
Francisque, Michel, *Le Pays Basque*, 75.
Franco, Alonzo, 162.
Franco, P., *Indios de Veragua*, 425.
Franklin, B., his papers in Henry Stevens's hands, xv; on the Norse voyages, 92; on the mounds, 398.
Franklin Co., Ohio, mounds, 408.
Frantzius, A. von, *San Salvador*, etc., 196.
Fraser, W., 51.
Frassus, *Regio*, etc., ii.
Frauds, archæological, 403.
Frazier, J. G., 328.
French colonists in North America, their treatment of the Indians, 283, 297; compared with the English, 299; aim to possess the Western country, 301, 302; their forts along the lakes, 302; their use of Indian lands, 303; numbers, 310; the testimony of their early explorers, 318; their manœuvres to monopolize the fur trade, 324.
Fresnoy, Lenglet du, *Méthode*, xxxii.
Fréville, *Cosmog. du Moyen Age*, 38, 76; *Commerce de Rouen*, 76.
Frey, S. L., 405.
Frezier, A. F., *Voyage*, 243, 271.
Friederichsthal, Baron von, in Yucatan, 186.
Friends. *See* Quakers.
Frisch, E. F., *Wikingzüge*, 85.
Frisius, Laurentius, map, 114.
Frislanda, 72; name used by Columbus, 73; "Fixlanda," 73; in maps, 73; in the Zeno map, 114; different identifications, 114, 115; in Stephanus's map, 130.
Fritsch, J. G., *Disputatio*, 93, 371.
Frobisher, xxxiv; and the island of Bus, 51.
Frode, Are, 84.
Froebel, *Seven Years' Travel*, 410.
Fry, J. B., *Army Sacrifices*, 319.
Fuenleal, Bishop, 155.
Fuensalida, Luis de, 155.
Fuentes y Guzman, F. A. de, *Guatemala*, 167, 196; *Recordacion Florida*, 168, 444.
Fuhlrott, Dr., 390.
Fur trade, 302.
Fusang. *See* Fousang.
Fustér, *Bibl. Valenciana*, ii.

Gabriac, Cte. de, *Promenade à travers l'Amérique du Sud*, 231.
Gacetas de Literatura, 180.
Gadé, G., on an ancient Norse ship, 62.
Gades (Cadiz), 13, 24.
Gaffarel, Paul, *L'Atlantide*, 16; *Les isles fantastiques*, 31, 47; *Relations entre l'anc. monde et l'Amérique*, 38, 60; *Etude sur les rapports de l'Amérique*, 40; *Les Grecs ont-ils connu l'Amérique?* 40; on the Phœnician visits to America, 41; on Roman inscriptions in America, 41; *Rapports de l'Atlantis*, 44, 46; his later studies of it, 44, 46; bibliog. of Atlantis, 46; *Voyages de St. Brandan*, 48; his map (*fac-simile*) of the Atlantic islands, 52; on the Arab voyages, 72; on Vinland, 97; on the Newport mill, 105; on the Zeno voyage, 115; on the lost tribes of Hebrews, 116; on blackamoors in America, 117.
Galapagos, 81.
Gale, G., *Upper Mississippi*, 327; his annotations on Lapham's *Antiq. of Wisconsin*, 408.
Galibi, 428.
Galicia, F. C., 171.
Gallindo, J., 193.
Gallæus, Ph., *Enchiridion*, 129; map, in facs., 129.
Gallatin, Albert, on Polynesian connections of the American man, 82; on pre-Spanish migrations, 138; on the Toltecs, 141; *Notes on the semi-civilized nations of Mexico*, 169, 424; *Synopsis of the Indian Tribes*, 320; his map of the Indian tribes, 321; a student of ethnology, 376; on the pueblos, 396; on American languages, 320, 422, 424; review of Hale's work on the Wilkes Exped., 424; on Teoyaomiqui, 435; founds the American Ethnological Society, 437; commends the work of Squier and Davis, 439.
Galloway, W. B., *Science and Geology*, 387.
Galvano, xxxvi; on the seven cities, 75.
Gannett, H., 397.
Gante, Pedro de, 156; *Chronica Compend.*, 156.
Garcia y Cubas, *Ensayo*, 41; *Atlas de la Republica Mejicana*, 139; *Pirámides*, 183.

Garcia, Gregorio, *Origen de los Indios*, i, 116, 264, 369; his *Monarquia de los Incas* lost, 264.
Gardar, Cathedral, 108.
Garden beds, 410.
Garden of Eden, 372.
Gardner, Job, on Dighton Rock, 103, 104.
Gardner, J. S., *Eocenes of England*, 44.
Garnier, Jules, *Les migrations polynésiennes*, 82.
Garnier, J. L., 172.
Garrigue and Christern, *Livres curieux*, xv.
Gass, Rev. J., 404.
Gatschet, A. S., on the Beothuks, 321; *Migration legend of the Creeks*, 326, 425, 426; his linguistic studies, 423, 426.
Gavarrete, Juan, 167.
Gavilan, A. R., *Hist. de Copacabana*, 264.
Gay, Sydney H., on the Norse voyages, 97.
Gebelin, Count, 104; *Monde primitif*, 41, 424.
Geiger, Lazarus, *Development of the human race*, 200.
Geijer, E. J., *Hist. of Sweden*, 84.
Geikie, A., *Search for Atlantis*, 45.
Geikie, Jas., *Great Ice Age*, 332, 386.
Gelcich, E., *Fischgang des Gascogner*, 75.
Geminus, *Isagoge*, 7; *Elementa astron.* or *Isagoge*, 35.
Gendron, *Pays des Hurons*, 321.
Genesis, a record of the Jews only, 372.
Genesis of Earth and Man, 373.
Geografisk Tidsskrift, 113.
Geographi Græci minores, 25.
Geographical Society of the Pacific, 438.
Geological Society, *Quarterly Journal*, 443.
Geology as controverting theology, 383.
George, Wm., xvi.
Georgia, case with the Cherokees, 326; mounds in, 410; Reck in, 326; shell heaps, 393.
Germany, archæological studies in, 443.
Gesner, W., 416.
Gesture-language, 422.
Ghetel, Henning, xx.
Gheysmer abridges Saxo, 92.
Giants in Mexico, 133; references, 133; their bones proved to be mastodon's, 133; the Toltecs, 141.
Gibbs, Geo., 409, 422; on the Oregon tribes, 328; *Chinook Dict.*, 423; his linguistic studies, 424; memoir of, 424; *Vocabularies of the Clalam and Lummi*, 425; *Chinook jargon*, 425; *Chinook language*, 425.
Gila Valley, 395.
Gilbert, J. K., *Niagara falls*, 333.
Gillies, John, *Hist. Collections*, 322.
Gilliss, G. M., 275.
Gillman, H., *Anc. men of the great lakes*, 403; papers on the mounds, 408; *Anc. works at Isle Royale*, 418.
Giroldi map (1426), 53.
Gist, Christopher, 287.
Glacial age, how long ago, 333, 382, 386; in America, 332, 386; man in the, 343, 387.
Glacial gravels, 387. *See* Trenton.
Gladiatorial stone, 182.
Gladstone, W. E., *Homer*, 12, 39.
Glareanus, revised Strabo, 34; on early references to America, 40.
Glass in pre-Spanish times, 177.
Gleeson, *Cath. Chh. in California*, 409.
Gliddon, Geo. R. *See* Nott, J. C.
Glorias del segundo siglo de la compañia de Jesus, 317.
Goajira, 428.
Goajra language, 425.
Gobineau, *Moral Diversity of Races*, 374.
Godron, A., on Fousang, 80.
Godthaab, 69.
Gold found in the mounds, 418.
Goldsmidt, Edmund, 370.
Gomez, Estevan, his voyage, xxxvi.
Gomme, G. L., 443.
Gonçalvez de Mattos Corrêa, *Descobertas*, xix.
Gondra, Padre, 170, 444.
Gonino, J., 177.
Goodell, A. C., jr., on the Norse voyages, 98.
Gooding, Jos., 103, 104.
Goodnow, I. P., 390.
Goodrich, Aaron, *The So-called Columbus*, 97.
Goodrich, S. G., 328.
Goodson, *Straits of Anian*, 110.
Gookin, Daniel, 322.
Goranson, 92.
Gorgon islands, 13.
Gosnold found metal in use in New England, 417.
Gosse, L. A., *Déformations du crane*, 373.
Gosselin, P. F. J., *Géog. des Grecs*, 36; *Recherches sur la géog.*, 36; *Iles de l'océan*, 46; on Atlantis, 46.
Gottfried, J. L., *Newe Welt*, xxxiii.
Göttingen, Anthropol. Verein, 443; Americana in, iii.
Götz, *Dresdener Bibliothek*, 205.
Goupil, René, 323.
Gowans, Wm., bookseller, vi; dealer in Americana, xv.
Graah, W. A., *Reise till ostkysten af Gronland*, 109.
Grammar as an ethnical test, 421, 422.
Granados y Galvez, J. J., *Tardes Américanas*, 172.
Grant, E. M., 410.
Gratacap, L. P., 177, 377.
Grave Creek mound, 403; alleged Scandinavian inscription in, 102, 403.
Gravier, Gabriel, *Les Normands*, 76, 97; *Découverte de l'Amérique*, 97; on Norse civilization among the Aztecs, 99; on the Dighton Rock, 104; *Le Roc de Dighton*, 104; on the Newport mill, 105.
Gray, Asa, on the flora of Japan, 44; in *Darwiniana*, 60; on Jeffries Wyman, 392.
Gray, D., 325.
Gray, Thomas, his copy of the *Novus Orbis*, xxv.
Greek allied to the Maya, 427.
Greeks, cosmography among, 2; in the Atlantic, 26.
Green, John, xxxv.
Green, Dr. S. A., 102.
Green rock (in the Atlantic), 51.
Greene, Albert G., his books, xiii.
Greenland, in the Ptolemy of 1482, xii; its name, 61; earliest people there, 61; its folk lore, 61; Norse visits in eighth century, 61; churches in, 63, 86; East and West Bygd, 63, 108; Norse occupation, 68; bishops of, 68; extinction of the colonists, 68, 69; efforts to learn their fate, 69; climatic changes, 69; its colonists perhaps merged in the Eskimos, 69; ancient bishopric, 85; its ruins, 85; bibliog., 85; runes in, 87; seals of the bishops, 87; voyages hence to Vinland, 87; *Antiq. Amer.*, 94; map, 95; a prolongation of Europe, 99, 122, 125. *See* Eskimos. Sometimes confounded with Spitzbergen, 107; bibliog. of the lost colonies, 107; voyages to discover them, 107, 109; Hans Egede on, 107; sites of the colonies disputed, 108, 109; scant population on east coast, 109; the Zeni in, 114; cartography of, 117, 132; oldest map yet found, 117; in the Genovese portolano, 117; in the *Tab. Reg. Sept.*, 117, 121; maps by Hans Egede, 108; by G. Fries, 108; by Paul Egede, 108; by Anderson, 108; by Rafn, 109; by Claudius Clavus, 117, 118; by Fra Mauro, 117; by Behaim, 120; by Sylvanus, 120; by Waldseemüller, 122; by Apian, 122; by Frisius, 122; by Olaus Magnus, 123, 125; by Münster, 126; by Bordone, 126; by Vopellio, 126; by Gallæus, 129; notions of Greenland in Columbus' time, 120; in Portuguese chart (1503), 120; Ruysch made it a part of Asia, 120; made to stretch northerly from Europe, 125; to connect Europe with America, 126; called Labrador by Rotz, 126; severed from Europe in the alteration of the Zeno map (1561), 128, 129; made an island by Mercator and others, 129; earliest Scandinavian maps to illustrate the sagas, 129; maps of xvith cent., 130; Moll's confusion, 131; maps by Hans Egede, 131; by Paul Egede, in facs., 131; by Jovis Carolus, 131; by H. Doncker, 131; by J. Meyer, 131; De la Martinière connects it with northern Asia, 132; La Peyrère's map in facs., 132.
Greenwood, Dr. Isaac, on Dighton Rock, 103, 104.
Greg, R. P., *Fret ornament*, 176.
Gregg, *Commerce des Prairies*, 396.
Gregory IV., his bull, 61.
Grenville, Thos., *Bibl. Grenvil.*, iv.
Griffis, W. E., *Arent van Curler*, 323.
Grijalva, Juan de, on the Mexican coast (1518), xxi, 149.
Grimm's Law, 421.
Grinlandia. *See* Greenland.
Griswold, Almon W., his library, xiii.
Grocland, a geographical misapprehension, 129; on maps, 129.
Gronland, or Gronlandia. *See* Greenland.
Gros, *Sur les Monuments de Mexico*, 170.
Grossmann, F. E., 397.
Grote, A. R., 369; on the Eskimos, 105.
Grote, *Greece*, 28.
Grotius, Hugo, on Scandinavia blood in Central America, 99; *De Origine Americanarum*, 369; his controversies, 370.
Grotlandia. *See* Greenland.
Gruppe, *Die Kosmischen Systeme der Griechen*, 39.
Grynæus, Simon, portrait, xxiv; *Novus Orbis*, xxiv; *Die neue Welt*, xxv; map (1532), 114.
Guajiquero Indians, 169.
Guanches in the Canaries, 25, 116, 377.
Guano, 253.
Guaranis, 136.
Guarini language, 278.
Guatemala, linguistic evidence of Norse influence in, 99; early hist. of, 135, 150; the ethnological connection of its people in dispute, 150; native sources, 166; *Popul Vuh*, 166; *Memorial de Tecpan Atitlan*, 166; bibliog., 166. *See* Quichés, Cakchiquels.
Guatusos, 169.
Guaxtecas, 136.
Guazucupan, 168.
Gucumatz, 135, 435.
Gudmund, Jonas, his Vinland map, 130.
Gudrid, 65.
Guerrero, ruins in, 184.
Guerrero, Lobo, *Constituciones Synodales*, 268.
Guest, Dr., *Origines Celticæ*, 45.
Guest, W. E., 410.
Guignes, on the Arab voyages, 72; *Les navigations des Chinois*, 78.
Guillot, Paul, 93.
Guimet, Emile, *Anc. peuples de Mexique*, 81.
Guiyard, *Géog. d'Abul-Fada*, 47.
Gumilla, 75.

Gunnbiorn, his voyage, 61; his Skerries, 109.
Günther, Siegmund, *Hypothèse*, 37; *Die Lehre von der Erdrundung*, 38.
Gurnet Head, 102.
Gutierrez, Manuel, 183.

Haas, Wills de, on the moundbuilders, 401, 403.
Habel, S., on sculptures in Guatemala, 197.
Haeckel, *Hist. of Creation*, 375; *Natürl. Schöpfungsgesch.*, 383.
Hakluyt, Richard, edits Peter Martyr, xxiii; used by Lok, xxiii; *Divers Voyages*, xxix; *Principall Navigations*, xxix; on Madoc, 109; on the Zeni, 111.
Hakluyt Soc. publications, xxxvii, 443.
Haldeman, S. S., 437; discovers rude implements, 347; on a Rock shelter, in Penna., 416.
Hale, Capt. Chas. R., on the Dighton Rock, 102.
Hale, E. E., on the Madoc voyage, 111.
Hale, Horatio, *Iroquois Book of Rites*, 325, 425; on the tribes of the N. W. coast, 328; *Origin of Language*, 377, 421; on the Cherokees, 402; *Primitive money*, 420; *Indian migrations*, 403, 422; in Wilkes' Exploring Exped., 423, 424; his linguistic studies, 424.
Hale, Nathan, 320.
Haliburton, R. G., on Bjarni's voyage, 63; on the Norse voyages, 98.
Hall, Jacob, 107.
Hall, James, *Indian Tribes*, 320.
Hall, Joshua, 410.
Hamconius, *Frisia*, 75.
Hamlin, A. C., 102.
Hampstead, G. S. B., *Portsmouth*, Ohio, 408.
Hamor in De Bry, xxxii.
Hamy, E. T., on a Chinese inscription at Copan, 81; *Crania Ethica*, 373; *Précis de paléontologie humaine*, 383.
Hanno, on the coast of Africa, 25; *Periplus*, 34; his voyage, 45.
Hanson, *Gardiner, Me.*, 322; *Norridgewock*, 322.
Happel, *Thesaurus*, 320.
Hardiman, *Irish minstrelsy*, 50.
Hardin Co., Ohio, mounds, 408.
Hardy, Michel, *Les Scandinaves*, 97.
Hariot, *Virginia*, xxxi.
Harrassowitz, Otto, xvi, xvii.
Harris, G. H., *Lower Genesee County*, 323.
Harris, John, *Voyages*, xxxiv.
Harris, T. M., on the mounds, 398; *Tour*, 405.
Harrison, Gen. W. H., on the mounds, 407.
Harrison, *John Howard Payne*, 326.
Harrisse, Henry, *Bibl. Am. Vet.*, v, 414; *Notes on Columbus*, v; controversy with Henry Stevens, v; *Sur la nouvelle France*, v; *Additions*, v; *La Colombine*, v; *Les Corte-real*, xix; on Peter Martyr, xx; on early Basque voyages to America, 75.
Hartgers, Joost, *Voyagien*, xxxiv.
Hartman cave, 391.
Harvard College library, rich in Americana, iii; Sparks MSS. in, vii; its catalogue, xvii.
Hassaurek, F., *Spanish Americans*, 272.
Hassler, *Buchdruckergeschichte Ulms*, 118.
Hatfield, R. G., on the Newport mill, 105.
Hatun-runas, 226.
Haumonté, J. D., *La Langue Taensa*, 425.
Harard, V., 328.
Haven, S. F., on the Northmen, 96; portrait, 374; his *Reports*, 374; his career, 376; *Archæology of the United States*, 376; revises Lapham's *Antiq. of Wisconsin*, 400; on mound exploration, 400; believes in their Indian origin, 400; *Prehist. Amer. Civilization*, 412.
Haven, S. F., jr., bibliography, ii.
Hawkins, Benj., *Creek Country*, 326, 429.
Hawkins, *Voyage*, xxxvi.
Hay, *Texcoco*, 170.
Hayden, F. V., *Ethnography and Philology of the Missouri Valley*, 424; *Survey of the territories*, 440; among the cliff houses, 395.
Hayes, I. I., *Land of Desolation*, 69, 98.
Haynes, H. W., on runic frauds, 97; on Vinland, 98; on the Monhegan runes, 102; "The prehistoric Archæology of North America," 329; discovers rude implements in N. E., 347, 363; *Bow and arrow unknown to the palæolithic man*, 355; believes in interglacial man, 355; at Solutré, 357; on the Eng. trans. of Grotius, 370; on the Trenton implements, 388; *Copper implements*, 418; on the Taensa fraud, 426.
Hayti held to be Ophir, 82.
Haywood, John, *Tennessee*, 372.
Headlee, S. H., 409.
Heart, Maj. Jona., *Ancient Mounds*, 398, 410.
Heaviside, J. T. C., *Amer. Antiquities*, 41.
Hecatæus, 34.
Heckewelder, J., on Delaware names, 437; on the mounds, 398; on the Delaware language, 423; correspondence with Duponceau, 425.
Heer, *Flora tert. Helv.*, 44; *Urwelt der Schweitz*, 44.
Hegewisch, Prof., iii.
Heidenheimer, H., *Petrus Martyr*, xx.
Heimskringla, 83.
Heller, C. B., on Uxmal, 189; *Reisen*, 189.
Helluland, 63, 130.
Hellwald, F. von, on Amer. migrations, 139; on the autochthonous theory, 375; *Naturgeschichte des Menschen*, 412; on Mexican mining, 418.
Helps, Sir Arthur, xii; gives the first English condensation of the *Popul Vuh*, 166; on Zumárraga, 203; *Spanish Conquest*, 269; on Peru, 269; *Realmah*, 379.
Henao, G. de, *Antig. de Cantabria*, 75.
Henderson, Ebenezer, *Iceland*, 93.
Henderson, Geo. F., *The Republic of Mexico*, 427.
Henotheism, 430.
Henry, Alex., *Travels*, 318; mentions copper mines, 417.
Henry, David, *Voyages*, xxxvi.
Henry, Joseph, 139; on Lake Superior mining, 418.
Henshaw, H. W., on the mounds, 401; *Animal carvings*, 404; on sinkers, 351, 417.
Herbert, Sir Thomas, *Travaile into Africa*, 109.
Herbrüger, E., *Album de Mitla*, 185.
Herckmann, *Der Zeevaert*, etc., xxxiv.
Hercules' twelve labors, 13.
Heredra, J. M. de, ed. Bernal Diaz, 154.
Heremite, J. d', *Journael*, 271.
Herjulfson, Bjarni, his voyage, 63.
Hermes, K. H., *Entdeckung von America*, 96.
Herodotus, 39.
Herr, Michael, *Die neue Welt*, xxv.
Herrera, H. A. de, *Disputatio*, xx.
Herrera in De Bry, xxxii; made use of the *Relaciones descriptivas*, 266; title-page of his fifth book, showing portraits of Incas, 267; *Historia*, i, 155.
Hervai, ruins, 271, 277.
Hervas, L., *Lenguas y naciones Americanas*, 422; *Catálogo de las Lenguas*, 422.
Hervey de St. Denis, *Fou-Sang*, 80.
Hesiod, *Theogony*, 2; on the Elysian Fields, 13; *Works and Days*, 13.
Hesperides, 14.
Heve language, 425.
Heynig, *Psychologisches Magazin*, 443.
Hidatsa language, 425.
Hieroglyphics, invented, 152; of Yucatan, attempts to decipher, 195; by Charencey, 195; used by Spaniards in relig. instruction, 197; stages of, 197; color and forms, elements, 197; not easily read even by natives, 198; Mrs. Nuttall's complemental signs, 198; phonetic scale, 198, 200; Landa's Alphabet, 198; general references, 198; on a Yucatan statue, 199; early descriptions, 200; sculptured in wood, 200; inscription on the Palenqué tablet, 200; cut of the same, 201; comparative age of those on stone and in MS., 202; rebus character, 202; *Codex Mendoza*, 203; tribute rolls, 203, 205; *Dresden Codex*, plate of, 204; explained, 205; *Codex Telleriano-Remensis*, 205; *Codex Vaticanus*, 205; *Fejérvary Codex*, 205; other Maya MSS., 205; *Codex Troano*, 205, 207; *Codex Cortesianus*, 207; facs. of plate, 206; *Codex Perezianus*, 207.
Higginson, T. W., *Larger Hist. U. S.*, 98, 176.
Higginson, Waldo, *Memorials of Class of 1833, H. C.*, 439.
Highland County, Ohio, mounds, 408.
Hildebrand, H. O. H., *Island*, 85.
Hilder, F. F., 409.
Hildreth, Richard, on the Northmen, 96.
Hildreth, Dr. S. P., *Pioneer History*, 319; *Pioneer Settlers*, 319.
Hilgard, E. W., 386.
Hill, G. W., 408.
Hill, Horatio, iii.
Hill, Ira, *Antiq. of America*, 104, 415.
Hill, S. S., *Peru and Mexico*, 272.
Himilko on the ocean, 25.
Hindoos, migrations, 371, 372.
Hipkins, A. J., *Musical instruments*, 420.
Hipparchus, 34; on the form of the earth, 3; on the oceans, 7.
Hispanicarum rerum Scriptores, xxix.
Historical societies, their libraries, xviii.
Hobbs, James, *Wild life*, 327.
Hochelagan skull, 377.
Hochstetter, F. von, *Ueber Mex. Reliquien*, 420.
Hodgson, Adam, *Letters*, 76.
Hoei Shin, 78, 80.
Hoffman, W. J., 347.
Holden, Edw. S., *Cent. Amer. Picture-writing*, 201, 202, 440.
Holden, Mrs. H. M., on Atlantis, 45.
Hole, the Norse Holl, 99.
Holguin, D. G., his grammar, 279.
Holm, Lieut., on the Greenland ruins, 86.
Holmberg, A. E., *Nordbon*, etc., 85.
Holmes, O. W., on Jeffries Wyman, 392.
Holmes, W. H., on the sacrificial stone of Teotihuacan, 183; on the cliff houses, 395; survey of the serpent mound, 401; on shell work, 417; *Use of gold in Chiriqui*, 418; on textile art, 419; *Ceramic art*, 419; on pottery in the Mississippi Valley, 419; *Pueblo Pottery*, 419, 440.
Homer, Arthur, *Bibl. Amer.*, ii.
Homer, his World, 6; his ideas of the earth, 38; his geography, 39.
Hondt, F. de, xxxv.
Honduras Indians, 169.

Hooker, J. D., *Botany of the Voyage of the Erebus*, etc., 82; *Flora of Tasmania*, 82.
Hopkins, A. G., 323.
Hopkins, Samuel, *Housatunnuk Indians*, 323.
Horace, and Atlantic islands, 27.
Horn, F. W., *Lit. of the Scandinavian North*, 84, 98.
Horn (Hornius), Geo., *Responsio ad diss. H. Grotii*, 370; on the Zeni, 111; on Madoc, 109.
Hornstone, 417.
Horsford, E. N., *Disc. of America by Northmen*, 98; edits Zeisberger's *Dictionary*, 424.
Hosea, L. M., 408.
Hospitality, laws of, 175.
Hotchkiss, T. P., 409.
Hotten, J. C., xvi.
Hough, F. B., on the N. Y. Indians, 325; on mound in N. Y. State, 405.
Houghton, Jacob, *Copper mines of Lake Superior*, 418.
Housatonics, 323.
Houses of the American aborigines, 420.
Howard, Lord, gov. of Virginia, 304.
Howe, *Hist. Coll. Ohio*, 407.
Howell, G. R., on Munsell, xv.
Howells, Jas., *Fam. letters*, 109.
Howgate polar exped., 106.
Howland, H. R., 408.
Howley, M. F., *Eccles. Hist. Newfoundland*, 69.
Howorth, H. H., *Irish monks and Northmen*, 61; *Mammoth and the Flood*, 45, 382; on Genesis, 384.
Hoy, P. R., 402; *Copper implements*, 418.
Hoyt, Epaphas, *Antiq. Researches*, 323.
Huacabamba, 276.
Huacrachucus, 227.
Hualli, 275.
Huamachuchus, 227.
Huanacauri hill, 224.
Huanaco, 213.
Huanapu, 275.
Huancas, 227; allies of the Chancas, 230.
Huanuco el viejo, 247.
Huaraz, ruins, 220.
Huarcu, 277.
Huarochiri, 277, 436.
Huascar, 231.
Huastecs, 136.
Huayna Ccapac, 231.
Hubbard, Bela, *Mem. of half century*, 408.
Hudson, Hendrick, voyage, xxxiv.
Hudson Bay connected with the Great Lakes, 79.
Hudson Bay Company, its relations with the Indians, 297.
Hudson Bay Indians, 321.
Hudson, *Geog. vet. script. Græci minores*, 34.
Hudson River Indians, 325.
Huebbe and Azuar, map of Yucatan, 188.
Huehue-Tlapallan, 136, 137.
Huemac, 140, 432.
Huerta, Alonso de, 279.
Huiñaque, ruins, 220.
Huitramannaland, 82.
Huitzillopochtli, 148, 432, 435.
Hulsius, bibliog., xii.
Hultsch, *Metrologie*, 4, 5.
Human sacrifices, 140, 145, 147, 148, 185; in Peru, 237, 238; in Mexico, 431.
Humboldt, Alex. von, his library, vi; *Examen Critique*, vi, 40; *Crit. Untersuchungen*, vi; *Géog. du nouveau monde*, vi; *Cosmos*, vi; his MSS., vi; on early mentions of America, 40; on Atlantis, 46; on the fabulous islands, 47; on the Arab voyages in the Atlantic, 72; on the Asiatic origin of Americans, 76; on the Icelandic sagas, 94; on the Norse discovery, 96; on the Dighton Rock, 104; on the Eskimos, 105; on the Zeni, 115; on the Aztec wanderings, 138; on their migration maps, 139; on Carreri, 158; buys some part of the Boturini collection, 160, 162; on the ruins of Middle America, 176; on the Cholula mound, 180; on Mitla, 184; describes Aztec MSS., 203; on the *Codex Telleriano*, 205; in South America, 270; *Vues de Cordillères*, 271, 371; Eng. transl., 271; *Voyage au régions équinoxiales*, 271; *Ansichten der Natur*, 271; *Aspects of Nature*, 271; *Views of Nature*, 271; on the Chibchas, 282; on the origin of Mexicans, 371; his bibliog. in his *Vues*, 413; on arts in America, 416; (with Bonpland) *Voyage*, 426.
Humboldt, Wm. von, his linguistic studies, 426.
Humphrey, D., *Soc. for propagating the Gospel*, 323.
Humphrey and Abbott, *Physics of the Mississippi Valley*, 393.
Hunt, Jas., 443.
Hurakan, 435.
Huron River, Ohio, mounds near, 408.
Hurons, 321; their language, 423.
Hutchinson, Thos., his library, i.
Hutchinson, T. J., on Peruvian skulls, 244; *Two years in Peru*, 272; *Some fallacies about the Incas*, 272.
Huttich, John, *Novus Orbis*, xxiv.
Huxley, on cataclysmic force, 382; *Distribution of Races*, 383; *Man's place in nature*, 390.
Hygden maps (1350), 55, 117; *Polychronicon*, 117.
Hyginus, on the form of the earth, 3; *Poeticon astron.*, 36.
Hyperboreans, 12.
Hyrcanian ocean, 382.

Icaza, Father, 444.
Icazbalceta, J. G., on Indian languages, vii; *Don Fray Zumárraga*, 155, 156, 203; on Sahagún, 157; ed. Mendieta, 157; *Apuntes*, 157; portrait, 163; prints the *Hist. de los Méxicanos por sus Pinturas*, 164; defends Zumárraga, 203; *Destruccion de Antigüedades*, 203; *Las bibliotecas de Eguiara y de Beristain*, 413; *Cat. de escritores en lenguas indígenas*, 414; *Bibl. Amér. del Siglo xvi.*, 157, 414, 426; his MSS., 427.
Iceland, visited by King Arthur, 60; by Irish, 60, 82; by the Norse, 83; bibliog., 84; millennial celebration, 85; books printed in, 93, 94; *Antiq. Amer.*, 94; map, by Rafn, 95; by Claudius Clavus, 117, 118; other maps, 118; in Mauro's map, 120; in map (1467), 121; in Martellus' map, 122; Olaus Magnus, 123, 124, 125; Seb. Münster, 126; Zeno map, 127, 128; by Gallæus, 129.
Icelandic language, 66.
Icelandic sagas. *See* Saga.
Ideler, J. I., vi.
Idols still preserved in Mexico, 180.
Igh, 134.
Il genio vagante, xxxiv.
Illinois, Indians, 327; mounds, 408.
Ilustracion Mexicana, 184.
Imlay, G., *Western Territory*, 398.
Imox, 134.
Inca civilization. *See* Peru.
India, supposed westerly route to, 27.
Indian languages. *See* Linguistics.
Indian Ocean once dry land, 383.
Indian summer, origin of the term, 319.
Indians, variety of complexion among, 111, 370; Morgan on their houses, 175; their contact with the French and English, 283; their feuds, 284; acquire fire-arms, 285, 301; deed lands, 286, 296; trade with the whites, 286; lose skill with the bow, 287; adoption of prisoners, 287; sell them for ransoms, 287, 289; treatment of captives, 290; captives cling to them, 291; life of, 293; trails, 294; traders among, 294, 297; as allies, 295; treaties with the English, 300, 304, 305; French missionaries among, 301; fur-hunters, 301; attempts to christianize, 307; the French instigations, 313; number of souls, 315; bibliog., 316; character in war, 318; government publications on, 320, 321; their shifting locations, 321; reservations for, 321; life of, as depicted by Morgan, 325; tribal society, 328; position of women, 328; medicine, 328; mortuary rites, 328; their games, 328; their mental capacity, 328; myths, 429; non-pastoral, 379; map of tribes, 381; decay of tradition among them, 400; degraded descendants of the higher races of middle America, 415; industries and trade, 416; lost arts, 416; copper mining, 418; influence of missions, 430; belief in a future life, 431; scope of Schoolcraft's work, 441.
Indiana, *Geol. Report*, 393; Indians, 327; mounds, 408.
Indianapolis Acad. of Sciences, 438.
Indio triste, statue, 183.
Industries of the Amer. aborigines, 416.
Ingersoll, Ernest, 440; *Village Indians*, 396; on Indian money, 420.
Ingolf in Iceland, 61.
Ingolfshofdi, 61.
Ingram, Robert, 115.
Institut Archéologique, *Annales*, 441.
Institution Ethnographique, 442; *Rapport*, 442.
Insulae Fortunatae, 14. *See* Fortunate Islands, Canaries.
Interglacial man, 334, 355.
International Congress of Prehistoric Archæology, *Trans.*, 443.
Inwards, Richard, *Temple of the Andes*, 219, 273.
Iowa mounds, 409.
Ireland the Great, 61; references, 82; variously placed, 82, 83; Rafn's map, 95.
Ireland, early map of, 118.
Irish legends about the island Brazil, 50.
Irish in Iceland, 60, 61, 82.
Irland it Mikla, 82. *See* Ireland the Great.
Irminger, Admiral, on the Zeni, 114.
Iron, meteoric, found in the mounds, 418.
Iroquois, held to be Turks, 82; Sir Wm. Johnson breaks their league, 284, 300; attacked by the French, 300; extend their hunting grounds, 303; war against the Illinois, etc., 303; addicted to rum, 303; treaty with the English (1764), 304; sources of their history, 323; map of their country, 323; in Colden's *Five Nations*, 324; their cession of western lands to the English in 1726, 324; sacrifice of the white dog, 325; build the mounds in New York, 402, 405; their arts, 416; hero-gods, 430; their monotheism, 430; myths, 431; language, 425.
Irving, Washington, on O. Rich, iii; on the Norse voyages, 93, 96.
Isla Verde, 31, 47, 51.
Islands of the Blest, 13, 15. *See* Canaries, Fortunate Islands.
Isle Royale, copper mines, 418.
Islenzkir Annáler, 83.
Israel, lost tribes. *See* Jews.
Italy, anthropological studies in, 444.
Itzamná, 434.
Itzcohuatl, 203.
Ivory workers, 417.
Ixtlilxochitl (ruler), 146.
Ixtlilxochitl (writer), 148; beginning of Mexican history, 155; gathers records, 157; his character, 157; his MS. material, 157; part secured by Aubin, 162; *Hist. Chichimeca*, 162; chief instigator of the feudal view of

Mexican life, 173; his illusive character, 174.
Izalco, 168.
Izamal, 186, 188, 434.
Iztachnexuca, 139.
Iztcoatl, 146.

Jacker, E., 327, 328.
Jackson, C. T., *Geol. Report*, 418.
Jackson, Jas., *Liste de bibliog. géog.*, i, xvii.
Jackson, W. H., among the cliff dwellings, 395; in the Chaco cañon, 396; *Photographs of N. Am. Indians*, 440.
Jacobs-Beeckmans, *Les iles Atlantique*, 53.
Jacobs, *Praying Indians*, 322.
Jacquet Island, 53.
Jade, 417; in Asia and America, 81.
Jadite, 417.
Jahrbücher für Anthropologie, 443.
Jalisco, 139, 433.
James, Capt. Thomas, his voyage, xxxv.
Japan discovered, 32; held to be Fusang, 78.
Jargons, 422.
Jarl, 61.
Jarvis, S. F., 381; *Religion of the Indian Tribes*, 429.
Jarz, K., on the Homeric islands, 40.
Jasper, 417.
Jaubert, trans. of *Edrisi*, 48.
Jay, John, early navigator, 50.
Jefferson, Thos., his anthropological collections, 371; on the mounds, 398; on Amer. linguistics, 424; his MSS. burned, 424; *Notes on Va.*, ii.
Jeffreys, *French Dominion*, 326.
Jemez, 394.
Jeremias, *Die Babylon.-Assyr. Vorstellungen*, 13.
Jesuits, their *Relations* as a source of Indian history, 316; their bibliog., xii; their missions, 317; travels of their missionaries, 318; in Peru, 262.
Jewitt, J. R., *Journal at Nootka Sound*, 327.
Jews, Grave Creek tablet, 404; migrations to America, 115.
Jiménes de la Espada, Márcos, *Biblioteca Hispano-ultramarina*, 260; edits Santillan, 261; edits Montesinos, 263; edits the *Relacion* of the Anonymous Jesuit, 263; *Coleccion de libros Españoles raros*, 263; *Tres Relaciones*, 263; edits Salcamayhua, 266; edits the *Informaciones por mandado de Don F. de Toledo*, 268; his editorial labors, 274; edits Cieza de Léon, 274; edits Betanzos, 274; portrait, 274.
Jogues, the missionary, 323; sources, 323.
Johannes, Count. *See* Jones, George.
Johnson, Elias, *Six Nations*, 325.
Johnson, G. H. M., 325.
Johnson, Sir William, and the Iroquois, 284; on his influence among the Indians, 318.
Jolibois, Abbé, on the anc. Mexicans, 81.
Joly, *L'homme avant métaux*, 383; *Man before metals*, 383; on the moundbuilders, 403.
Jomard, *Les Antiq. Amér.*, 80; *Une pierre gravée*, 404.
Jones, C. C., *Tomo-chi-chi*, 326; finds rude stone implements in Georgia, 344; *Antiq. of No. Amer. Indians*, 344; on the making of arrow-heads, 417; on the Georgia mounds, 410; *Indian Remains*, 410; *Anc. tumuli*, 410; *Antiq. of Southern Indians*, 293, 410; on effigy mounds, 410; on bird-shaped mounds, 410; on rock inscriptions, 411.
Jones, David, *Two visits*, 110, 326, 398.
Jones, Geo., *Orig. Hist. of Ancient America*, 41, 190.
Jones, H. G., on Madoc's voyage, 110.
Jones, Jos., 419; on the mounds, 410.
Jones, J. M., on shell heaps, 392.
Jones, Morgan, on the Tuscaroras, 109.
Jones, Peter, *Ojibway Indians*, 327.
Jones, *Oneida County*, 323.
Jones, *Stockbridge*, 323.
Jónsson, Arngrimur, 84; *Grönlandia*, 85.
Jordan, Francis, *Aboriginal Encampment at Rehoboth, Del.*, 393.
Jordan, Fr., jr., 419.
Jorell, Otto, *Navires du Nord*, 62.
Jotunheimer, 130.
Jourdain, A., *Traductions d'Aristote*, 37.
Jourdain, Ch., *Influence d'Aristote*, 37, 38.
Journal of American Folk Lore, 438.
Journal of Anthropology, 442.
Jowett, B., *Dialogues of Plato*, 46.
Joyce, *Old Celtic Romances*, 33, 50.
Juarros, Domingo, *Guatemala*, 168, 196.
Jubinal, *Légendes de S. Brandaines*, 48.
Julianehaab district, maps, 87, 89.
Junks, drifting of, 78.
Junquera, S. P., 115.
Justiniani, Dr. Pablo, 281.

Kabah, 188, 200.
Kabah-Zayi, 186.
Kakortok, 86, 88.
Kalbfleisch, C. H., his library, xviii.
Kalm, Peter, on the Norse voyages, 92; *Travels*, 325; on the mounds, 398; on the formation of soil, 361.
Kames, Lord, *Hist. of Man*, 380.
Kan-ay-ko, 394.
Kane, Paul, *Wanderings*, 321.
Kansas Academy of Sciences, 438.
Kansas City Review, 439.
Kansas mounds, 409.
Keane, A. H., 273, 410; *Ethnology of America*, 412, 422.
Keary, C. F., *Dawn of History*, 412, 415.
Keller, Dr., on the Swiss lake dwellings, 395.
Kelley, O. H., 409.
Kemp's discovery in London, 388.
Kendall, E. A., 104; *Travels*, 104.
Kennebecs, 322.
Kennedy, James, *Origin Amer. Indians*, 117.
Kennedy, J., *Probable origin of the Amer. Indians*, 369; *Essays*, 369.
Kennett, White, *Bibl. Amer. Prim.*, i; his library, i.
Kennon, B., 78.
Kentucky caves, 390.
Kentucky mounds, 409.
Keppel, *Gestalt, Grösse, und Weltstellung der Erde*, 39.
Kerr, Henry, *Travels*, 111.
Kerr, Robert, *Voyages*, xxxvi.
Keyport, N. Jersey, 363, 393.
Keyser, J. R., *Private life of the old Northmen*, 85; *Religion of the Northmen*, 85.
Keyser, K., *Norges Hist.*, 85.
Kich-Moo, 187.
Kiché, Brinton's spelling of Quiché, 167.
Kidder, F., 325.
King, Richard, 106.
Kingektorsoak stone, 66.
Kingsborough, Edward, Lord, his belief in the lost-tribe theory, 116; acc. of, 203; his MSS. in Rich's hands, 203; in Sir Thomas Phillipps', 203; *Antiq. of Mexico*, 203; copies, 203; finds no MSS. in Spain, 203.
Kingsley, Chas., *Lectures*, 98.
Kingsley, J. S., *Standard Nat. Hist.*, 356.
Kino, Padre, 396.
Kircher, A., *Mundus Subterraneus*, 9, 43; *Œdipus Ægypticus*, 204.
Kiriri, 428.
Kirkland, the missionary, on the mounds, 399.
Kitchen-middens. *See* Shell heaps.
Kittanning, 312.
Klaproth, J. H. von, *Fousang*, 78.
Klee, *Le Déluge*, 390.
Klemm, *Allgem. Culturgesch. der Menschheit*, 377, 431; *Allgem. Culturwissenschaft*, 377.
Kneeland, Samuel, *Amer. in Iceland*, 85; on the skeleton in armor, 105.
Kneip, C. H., iii.
Knight, Mrs. A. A., 45.
Knox, Robert, *Races of Men*, 369.
Knox, *Voyages*, xxxvi.
Koch and the Missouri mastodon, 388.
Kohl, J. G., on the Northmen voyages, 97; on Frislanda, 114; *Kitchi-Gami*, 327.
Kolaos, voyage, 40.
Kollmann, Dr., 384.
Kosmos, 438.
Koriaks, 77.
Kramer, J., ed. Strabo, 34.
Krarup, F., on the Zeni, 113.
Krause, E., *Northwest Coast of America*, 328.
Kristni Saga, 85.
Krossanes, 101, 102.
Kublai Khan, 82.
Kukulcan, 152. *See* Cukulcan.
Kumlein, L., *Nat. Hist. Arctic America*, 106.
Kunstmann, *Mémoires*, 53.

La Borde, *Mer du Sud*, 43; *L'origine des Caraïbes*, xxxiv, 117.
La Harpe, *Voyages*, xxxvi.
La Mothe Cadillac at Detroit, 303.
La Peyrère, map of Greenland, 132; *Relation du Groenland*, 132.
La Roquette on the Zeni, 112.
La Salle and the Indians, 318.
Labarthe, Charles, *La civilisation péruvienne*, 275; *Doc. inédits sur l'Empire des Incas*, 275.
Labat, *Nouveau Voyage*, 117.
Labrador, name of, 31, 74.
Lacandons, 188.
Lacerda, José de, *Doutor Livingstone*, 114.
Lachmann, *Sagenbibliothek*, 91.
Lacustrine deposits, 347; habitations, 393.
Laet, Joannes de, *Nieuwe Wereldt*, i; *Notæ ad diss. H. Grotii*, 370; further controversy with Grotius, 370.
Lafieri, *Geografia*, 125.
Lafitau, on the Asiatic origin of Americans, 76; *Mœurs des Sauvages*, 317; on the Tartar origin of Americans, 371.
Lagerbring, Sven, 84.
Laguna, Col. de la, 184.
Laing, Ed., *Heimskringla*, 92; on the sagas, 99.
Lake Bonneville, 347.
Lake Lahontan, 347.
Lake Superior, copper mines, 417.
Lamarck, J. B. A., his transformation theory, 383; *Philosophie Zool.*, 383.
Lambayeque, 275.
Lancaster, Pa., treaty at, 305.
Landa, Bishop, *Relacion*, 164, 200; edited by Brasseur, 164; by Rada y Delgado, 165; critical account of editions by Brinton, 165; his alphabet, 198; facs. of part of it, 198; exists only in a copy, 198; pronounced a fabrication, 200, 202; analysis of, 201; misleading, 202; his destruction of MSS., 203.
Landino, 35.
Landnamabók, 83; editions, 83.
Landry, S. F., *Moundbuilder's Brain*, 403.
Lands, tenure of, 175.

Lang, A., 281.
Lang, J. D., *Polynesian Nations*, 82.
Langdon, F. W., 408.
Langebek, Jacobus, *Scriptores rerum Danicarum*, 83.
Langius, *Med. Epist. Misc.*, 41.
Langlet du Fresnoy, *Méthode*, i.
Language, as a test of race, 421, 422; failed in the palæolithic man, 421. *See* Linguistics.
Laon globe (1486), 119; cut, 56.
Lapham, I. A., on the Indians of Wisconsin, 327; *Antiq. of Wisconsin*, 400, 408.
Lappawinzo, 325.
Larenaudière, *Méxique*, 190.
Larkin, F., *Anc. man in America*, 384, 405, 415.
Larrabure y Unanue, E., on the Ollantay drama, 282.
Larrainzar, M., *Estudios sobre la hist. de America*, 172, 195; on Palenqué, 195.
Lartet, Ed., *Nouvelles Recherches*, 388; *Annales des Sciences*, 441.
Lartet and Christy, *Reliq. Aquitanicæ*, 389.
Las Casas, *Narratio*, xxxiii; *Apolog. hist.*, 155.
Latham, *Nat. Hist. of Man*, 374; *Man and his migrations*, 381.
Latreille, 16.
Latrobe, C. J., *Rambles in Mexico*, 180.
Laud, Archbp., 205.
Laurentian hills, 384.
Laurenziano-Gaddiano portolano, 55.
Law, A. E., 410.
Lawson, *Carolina*, xxxv.
L'Estrange, Sir H., *Americans no Jewes*, 115.
Le Beau, *Voyage*, 321.
Le Hon, H., *Influence des lois Cosmiques*, 387; *L'homme fossile*, 383.
Le Moyne, *Florida*, xxxii.
Le Noir on the *Dresden Codex*, 205.
Le Plongeon, Dr., on Atlantis, 44; on the connection of the Maya and Asiatic races, 81; on traces of the Guanches in Yucatan, 117; his studies in Yucatan, 166, 186; his discovery of the Chac-mool, 180, 181, 190; *Sacred Mysteries*, 180, 187; his over-confidence, 187, 200; controversies, 187; at Chichen-Itza, 187, 190; on the Maya tongue, 427.
Le Plongeon, Mrs. Alice, her studies on the Mayas, 166, 169, 187; *Vestiges of the Mayas*, 187; *Here and There in Yucatan*, 187.
Leardo, Giovanni, map (1448), 56; (1452), 53, 56, 115.
Leclerc, Ch., *Bibl. Amer.*, vii, xvi, 413, 423.
Leclercq, *Gaspésie*, 321.
Leconte, J. L., on the California Indians, 437.
Lee, Arthur, on the mounds, 398.
Lee, J. C. Y., 397.
Lee, J. E., *Lake dwellings of Switzerland*, 395.
Leffler, O. P., 84.
Legendre, Napoleon, *Races de l'Amérique*, 369.
Legis-Glueckselig, *Die Runen*, 66.
Legrand d'Aussy, *Image du monde*, 37.
Leibnitz, *Opera philol.*, 40.
Leidy, Jos., 374; discovers rude implements in lacustrine deposits, 347; on a mustang skull found in the California gravels, 353; *Extinct mammalia*, 388; on shell-heaps, 393; on the Hartman cave, 391.
Leif Ericson, his career, 62; his voyage to Vinland, 63; described, 90; statue in Boston, 98.
Leipzig, Museum für Völkerkunde, *Bericht*, 443; *Verein für Anthropologie*, 443.
Leland, Ch. G., *California and Mexico in the Fift. Cent.*, 80; *Fusang*, 80; *Mythology of the Algonquins*, 99; *Algonquin legends*, 99, 431; on the Norse spirit in Algonquin myths, 99.
Lelewel, on the Arab voyages, 72; on Frislanda, 114.
Lemoine, J. M., on the Hurons, 321; on Indian mortuary rites, 328.
Lemuria, 383.
Lenape stone, 405.
Lenni Lenape, 325, 437. *See* Delawares.
Lenoir, A., on Egyptian traces in America, 41; compares Palenqué with Egyptian remains, 192.
Lenox Library, xi; its bibliographical contributions, xi.
Lenox, Jas., his library, xi; *Recollections* by Stevens, xi; his De Brys, xxxiii.
Léon y Gama, A. de, *Desc. de las Dos Piedras*, 159, 182; chronol. tables of Mexico, 133.
Léon y Pinelo, *Epitome*, i.
Leone, Giovan, *Viaggio*, xxix.
Lepsius, *Das Stadium*, 4.
Lesage, S., 317.
Lesley, J. P., *Origin and Destiny of Man*, 379, 383; his independent views, 384.
Lesson and Martinet, *Les Polynésiens*, 82.
Letheman on the Navajos, 327.
Letronne, on the size of the earth, 5; on the views of the extension of Africa, 7; *Opinions Cosmog. des Pères*, 38.
Levinus printed with Martyr, xxiii.
Lévy-Bing on the Grave Creek mound tablet, 404.
Lewis, Sir Geo. C., *Astron. of the Ancients*, 36.
Lewis, H. C., *Geol. Survey of Penna.*, 388; *Trenton gravels*, 337, 388.
Lewis, T. H., on the mounds, 400, 403; on a snake mound, 401; on Iowa mounds, 409; on Kentucky mounds, 409; on Red River mounds, 410; on Rock inscriptions, 410.
Lewis and Clarke, on the Indians, 320; discover mounds, 409; their Indian vocabularies lost, 424.
Lexington, Ky., Indian fort, 437.
Li Yan Tcheou, 80.
Libraries, American, i; in New England, i; private, of Americana, vi.
Libretto de tutta la navigazione, etc., xix.
Libyan relic in America, 404.
Lick Creek mound, 408.
Lima, audience of, 211.
Linares on Teotihuacan, 182.
Lindenow, G., voyage to Greenland, 107.
Linguistics, American, bibliog. of, vii, 421, 423; affiliations with Asia, 77; with China, 81; used in studying ethnical relations, 421; number of stocks, 422, 424; dialects, 422; maps of America, by languages, 422; polysynthesis, 422; collections, 425; vocabularies in Wheeler's Survey, 440.
Linschoten, xxxvii.
Lisbon Academy, *Memorias da Litteratura*, xix.
Little, Wm., *Warren*, 322.
Little Falls, Minn., 346.
Little Miami valley, mounds in, 403, 408.
Littlefield, Geo. E., xv.
Livermore, Geo., on Henry Stevens, xiv.
Lizana, B., 165.
Ljung, E. P., *Dissertatio*, 370.
Llamas of Peru, 213, 253; cut of, 213.
Llanos, Adolfo, *Sahagún*, 157.
Lloyd, Humphrey, *Cambria*, 109.
Lloyd, H. E., 108.
Lloyd, T. G. B., 321.
Loaysa, 162.
Locke, Caleb, *Hist. de la navigation*, xxxiv.
Locke, John, on the Wisconsin mounds, 400; *Mineral Lands*, 400.
Locket, S. H., 409.
Lockwood, Rev. Samuel, 363; collection, 393.
Lodge, Henry Cabot, review of Gravier's *Découverte par les Normands*, 97.
Loess, 332, 348; of the Mississippi Valley, 388.
Loew, O., 394.
Löffler, E., on Vinland, 98.
Logan, James, his position in Penna., 308.
Logstown, 287.
London Anthropological Society, *Memoirs*, 442; *Trans.* and *Journals*, 442.
London Society of Antiquaries, *Archæologia*, 442.
Long, R. C., *Anc. Arch. of America*, 176.
Long, *Bibl. Amer.*, ii.
Longfellow, H. W., *Skeleton in Armor*, 105.
Longperier, A. de, *Notice des Monuments*, 444; *Bronzes Antiques*, 26.
Loo-choo Islands, 80.
Lopez, V. F., on Quichua roots, 280; *Les Races Aryennes du Pérou*, 82, 241, 281; on the Ollantay drama, 282.
Lorente, S., *Hist. Antig. del Peru*, 270; papers in the *Revista Peruana*, 270; *Revista de Lima*, 270.
Lorenzana, *Hist. Nueva España*, 203.
Lorillard, Pierre, 177.
Lorillard City, 177; situation, 188.
Lort, Michael, 104.
Loskiel, G. H., *Mission*, 371, 429.
Lothrop, S. K., *Kirkland*, 323.
Loudon, Archibald, *Selection of narratives*, 319.
Louisiana, missions in, 326; mounds, 409.
Löw, Conrad, *Meer Buch*, xxxiii.
Löwenstern, *Le Méxique*, 182.
Lowndes, the bibliographer, xvi.
Lubbock, Sir John, *Origin of Civilization*, 377, 380; as an anthropologist, 379; portrait, 379; *Prehistoric Times*, 379; on *No. Amer. Archæology*, 379; on the degeneracy of the savage, 381; *Early Condition of Man*, 381; *Scientific Lectures*, 387; on prehistoric archæology, 412.
Lucy-Fossarieu, P. de, *Ethnographie de l'Amérique Antarctique*, 442.
Ludewig, Hermann E., *Amer. local History*, v; *Amer. Aborig. Linguistics*, v; *Lit. of Amer. Aborig. Language*, vii, 423.
Lule, 428.
Lummi language, 425.
Lumnius, J. F., *De Extremo Dei Judicio*, 115.
Lunarejo, Dr., 280.
Lund, Dr., on caves in Brazil, 390.
Lurin, 277.
Lyctonia, 46.
Lydius, B., xxv.
Lyell, Sir Charles, on Atlantis, 44; *Antiquity of Man*, 384; eds., 384; *Second Visit*, 393; on the mound-builders, 402.
Lykins, W. H. R., 409.
Lyman, Theodore, 3d, 412.
Lyó-Baa, 184.
Lyon, G. F., *Journal*, 170; *Mexico*, 183.
Lyon, S. S., 410; *Antiquities from Kentucky*, 439.
Lyon, W. B., 397.

Maccauley, Clay, on the Seminole Indians, 326.
Macedo, Dr., on Inca and Aztec civilizations, 275.
Machimus, 22.
Maciana library (Venice), vi.
Mackenna, B. V., his books, xiii.
Maclean, J. P., on Atlantis, 45; *Mastodon, Mammoth and Man*, 388; *Moundbuilders*, 401; on the serpent mound, 401; on the Grave Creek

tablet, 404; mounds in Butler County, 408.
Maclovius, Bishop of Aleth, 48.
Macomb, J. N., *Exploring Exped. from Santa Fé*, 440.
Macrobius, 13, 31; *Comm. in Somn. Scip.*, 9, 10, 11, 36; his maps, 10, 11, 12.
Madeira, 48; known to the ancients, 15, 25, 27; in the Bianco map, 50.
Madier de Montjau, *Chronol. hiérog.*, 133; on Mexican MSS., 163; *Chronol. des rois Aztèques*, 200.
Madison, Bishop J., on the mounds, 398; on fortifications in the West, 437.
Madisonville, Ohio, Archæolog. Soc., 407; mounds, 408.
Madoc, Prince, his voyage, 71; bibliog., 109, 110, 111; linguistic traces of the Welsh in America, 109; English eagerness to substantiate his voyage, 109; some believe he went to Spain, 111; his people are the Mandans, 111; possible, but not probable, 111.
Madriga, P. de, 271; voyage to Peru, xxxiv.
Madrinanus, A., xx.
Maelduin, 33, 50.
Mag Mell, 32.
Magazin für die Naturgeschichte des Menschen, 443.
Magellan, xxviii, xxxiv, xxxv, xxxvi, xxxvii.
Magio, Ant., *Lengua de los Indios Baures*, 425.
Magnus, Olaus, *Hist. of the Goths*, 84; maps (1539), 123; (1555), 124; (1567), 125; *Historia*, 125; *Von dem alten Goettenreich*, 125.
Magnusen, Finn, 86, 96; on *Scand. divisions of time*, 99; an instance of his over-eagerness, 102.
Magnussen, Arne, 88.
Magrurin, 33.
Mahudel on stone implements, 387.
Mailduin, 33, 50.
Maillard, Abbé, *Miconaque language*, 425.
Maine Indians, 322; Indian missions, 322; shell heaps, 392.
Maisonneuve, *Bibl. Amer.*, xiv, xvi; *Collection linguistique*, 425.
Maisonneuve. *See* Leclerc.
Maize in Peru, 213.
Major, R. H., on the Atlantic islands, 47; on Arab voyages in the Atlantic, 72; on the Northmen, 96; on the sites of the Greenland colonies, 109, 113; on the Madoc voyage, 111; advocates the Zeni story, 112; portrait, 112.
Mala, 277.
Malay emigration to America, 60.
Malay stock in America, 81, 82.
Mallery, Col. Garrick, on the Dighton Rock, 103; on Indian inscriptions, 104; on pictographs, 410; on gesture language, 422; *Study of Sign language*, 422, 440.
Mallet, P. H., *Dannemark*, 92; *Northern Antiq.*, 84, 92.
Malte-Brun, *Annales des Voyages*, xxxvi, 441; *Nouvelles Annales*, xxxvi, 441; on the Arab voyagers, 72; on the sagas, 92; on the Zeni, 112; *Précis de la géog.*, 112; map of Central America, 151; map of Yucatan, 188; *L'époque des monumens de l'Ohio*, 398; *Nations et langues au Méxique*, 427.
Mame-Huastèque language, 426.
Mamertinus, 47.
Mammoth, 388.
Man Satanaxio, 31, 47, 49, 54.
Man, origin and antiquity of, in America, 330, 369; bibliog., 369; plurality of origin, 372; autochthonous, in America, 372; references on, 375; prehistoric, 377; stages of prehistoric existence, 377; his progress from barbarism to civilization, 378; influenced by climate, 378; degenerate in the modern savage, 380; controversy on this point, 381; arguments against his antiquity, 382; for it, 383; English, French, and German schools of opinion, 383; original home in the Indian Ocean, 383; his geological remoteness in Europe, 330, 384; references on his antiquity in America, 384; in the Glacial age, 387; existence with extinct animals, 388; in American caves, 389; scarcity of human remains of the palæolithic era, 390; early man in So. America, 390; as lake dweller, 395; of the Danish peat beds, 395; general references on prehistoric man, 412, 415; as a speaking animal, 421; unity of the American race, 429; the thoughts of early man, 429. *See* Anthropology.
Manasseh Ben Israel, 115.
Manchester Geographical Society, *Journal*, 442.
Manco Ccapac, origin of, 225; at Cuzco, 224; portrait, 228.
Mancos River, 395.
Mandans, 111.
Mange, Padre, 396.
Mangue dialect, 428.
Mangues, 169.
Mani, 153; archives, 189.
Manilius, on the form of the earth, 3; *Astronomicon*, 36.
Manitoba Hist. Society, *Trans.*, 410; mounds, 410.
Mapa de Cuauhtlantzinco, 180.
Marana, J. P., *Turkish Spy*, 110.
Marçay, De, *Découvertes de l'Amérique*, 45.
Marceau, E., *Les anc. peuples d'Amérique*, 412.
Marcel de Serre, *Cosmog. de Moise*, 41.
Marcellus, *Ethiopic History*, 41.
March y Labores, José, xxxvii.
Marcoy, *Travels in So. Amer.*, 209; *Voyage*, 272.
Marcy, R. B., *Border Reminiscences*, 319; (with G. B. McClellan) *Exploration of the Red River*, 327, 440.
Margry, Pierre, *Mémoires*, 302, 317.
Maricheets, 321.
Marietta, mounds, plan of, by W. Sargent, 437; Harris, view of the mounds, 405; mounds at, discovered, 407.
Marinelli, G., *Erdkunde bei den Kirchen-Vätern*, 30, 38.
Marinus of Tyre, 34; on the size of the known earth, 8.
Markham, C. R., on the Eskimos, 107; "The Inca civilization in Peru," 209; translates Report of Ondegardo, 261; Molina's *Rites of the Incas*, 262, 436; translates Avila's narrative, 264; edits Salcamayhua, 266: *Cuzco and Lima*, 271; *Travels in Peru and India*, 271; *Peru*, 271; portrait, 272; on Tiahuanacu, 273; his editorial work, 274; on the Quichua language, 280; *Ollanta*, 281; reply to Mitre, 282; *Ocean Highways*, 442; *Geog. Review*, 442; *Geog. Mag.*, 442.
Markland, 63, 130.
Marmier, X., *Island*, 84.
Marmocchi, F. C., *Viaggi*, xxxvii, 163.
Marquesas islands, 81.
Marquez, P., *Antichi mon. de Arch. Messicana*, 180.
Marriott mound, 408.
Marryat's *Travels*, 321.
Marsh, Geo. P., 84, 439.
Marsh, O. C., on the Newark mounds, 408.
Marshall, O. H., *Hist. Writings*, 323; on the Ohio Valley Indians, 326.
Marson, Are, 82.
Martellus, H., *Insularium illustratum*, 114, 119; map sketched, 122.
Marten, *Voyage to Greenland*, xxxiv.
Martha's Vineyard, tracts on the conversion of the Indians, 322.
Martin, Félix, *Hurons et Iroquois*, 321; *Jogues*, 323.
Martin, Gabriel, xxxii.
Martin, Henri, *Dissertation sur l'Atlantide*, 46; *Timée de Platon*, 46.
Martin, Luis, 184.
Martin, T. H., his astron. papers, 36; *Cosmog. Grecque*, 39; *Sur le Timée*, 42.
Martin of Valencia, 156.
Martinez, J., Quichua vocabulary, 279.
Martinière, map of Greenland, 132; *Voyages*, 132.
Martius, F. P. von, *Sprachenkunde Amerikas*, 428; *Glossaria*, 428; *Beiträge*, 136.
Martyr, Peter, bibliog., xx; his first decade, xx; *Legatio Babylonica*, xx; acc. by Harrisse, xx; by Schumacher, xx; by Heidenheimer, xx; *Die Schiffung*, xxi; Poemata, xxi; *De Nuper sub D. Carolo repertis insulis*, xxi; facs. of title, xxii; *De orbe novo*, xxi; *Extrait ou Recueil*, xxi; *De rebus oceanicis*, xxiii; *Summario*, xxiii; joined with Oviedo, xxiii; Eden's *Decades*, xxiii; Willes' *Hist. of Travayle*, xxiii; edited by Hakluyt, xxiii; by Lok, xxiii; *Opus Epistolarum*, xxiv; on the Ethiopian origin of the tribes of Yucatan, 117; describes the Maya and Nahua picture-writings, 203.
Maryland, docs. in her Archives, xiv; Hist. Soc., xviii; Indians, 325.
Masks, Mexican, 419.
Mason, Geo. C., on the Newport mill, 105; *Rem. of Newport*, 105.
Mason, O. T., on the mounds, 402; bibliog. of anthropology, 411; on anthropology in the U. S., 411; his anthropolog. papers, 439.
Massachusetts Bay map, 100.
Massachusetts Hist. Soc., Library Catalogue, xvii; on the statue of Leif Ericson, 98; on Rafn's over-confidence, 100.
Massachusetts Indians, 323.
Massachusetts Quart. Rev., 96.
Massachusetts State Library, xvii.
Massilia founded, 26.
Mastodon, carvings of, 405; mound, 409; remains of man associated with the, 388; how long disappeared, 389.
Materiaux pour l'histoire primitive, 411.
Mather, Cotton, on Dighton Rock, 103, 104; *Wonderful works of God*, 104; on Jews in New England, 115; on supposed remains of a giant, 389; and the Royal Society, 442.
Mather, Increase, his letter to Leusden, 322.
Mather, Saml., *America known to the ancients*, 40.
Mathers, their library, i.
Matienzo, Juan de, *Gobierno de el Peru*, 261.
Matlaltzinca, 148.
Matthews, W., *Language of the Hidatsa*, 425; *Hidatsa Indians*, 440.
Maudsley, A. P., *Guatemala*, 197.
Maurault, *Abenakis*, 322.
Maurer, Konrad, *Altnord. Sprache*, 84; *Island*, 85; *Isländische Volkssagen*, 85; on the Zeni, 113; *Rechtgesch. des Nordens*, 85.
Mauro, Fra, map (1457), 53, 117; facs. of northern parts, 120.
Maury, Alfred, 374.
Mavor, *Voyages*, xxxvi.
Maximilian, Emperor of Mexico, his library, viii.
Maximilian, Prince, *Reise*, 319; *Travels*, 392.
Maxtla, 146.
Maya d'Ahkuil-Chel, 426.
Mayapan, 152; deserted, 153.

Mayas, origin of, 134, 152; name first heard, 135; nations comprised, 135; acc. of, 152; hieroglyphics, 152, 426; Katunes, 152; calendar, 152; manuscripts, 162; Chilan Balam, 164; *Popul Vuh*, their sacred book, 166; their last pueblo, 175; picture-writing, 197; metals among, 418; languages of, 427; dialects, 427; allied to the Greek, 427; general references, 427; religion of, 433; hero-gods, 430, 434.
Mayberry, S. P., on Florida shell heaps, 393.
Mayda, 31, 47, 51, 53.
Mayer, Brantz, on Sparks, vii; *Mexico*, 170; *Observations on Mex. hist.*, 184.
Mayhews, the Indian missionaries, 122.
Mayta, Ccapac, Inca, 229.
Mazahuas, 136.
Mazetecs, 136.
McAdams, W., 409; *Anc. Races in the Mississippi Valley*, 403, 410; *Cahokia*, 408.
McCaul, John, 99.
McCharles, A., 410.
McClellan, G. B., 440.
McClintock and Strong's *Cyclop. bibl. lit.*, 384.
McClure and Parish, *Mem. of Wheeloch*, 322.
McCoy, Isaac, *Baptist Indian missions*, 369.
McCulloh, James H., *Researches on America*, 169, 372; on the mounds, 399.
McCullough, John, captive to the Indians, 292, 319.
McElmo cañon, 395.
McFarland, R. W., 408.
McGee, W. J., 377; on glacial man, 330, 343; on the Columbia period, 343; his lacustrine explorations, 349; on Iowa mounds, 409.
McIntosh, John, *Disc. of America*, 372.
McKenney, T. L., *Memoirs*, 320; his career, 320; (with James Hall) *Indian Tribes*, 320.
McKinley, Wm., 410.
McKinney, W. A., 41.
McLennan, J. F., *Primitive Marriage*, 380; *Studies in Anc. Hist.*, 380.
McMaster, S. Y., 111.
McParlin, J. A., 397.
McWhorter, T., 408.
Measures of length used by the Mexicans, 420.
Meddelelser om Grönland, 86.
Medel on the Mex. hieroglyphics, 200.
Megatherium, 389
Megiser, H., *Sept. Novantiquus*, xxxiv, 111.
Meigs, J. A., on Morton's collection, 372; *Catal. human crania*, 372; *Obs. on the cranial forms*, 374; *Form of the occiput*, 375.
Meineke, A., ed. Strabo, 34.
Mela, Pomponius, his views of the extension of Africa, 10; relations with Ptolemy, 10; on men supposed to be carried from America to Europe, 26; *De Situ Orbis*, 36.
Melgar, E. S. de, 279.
Melgar, J. M., *De las Teogonias en los manuscritos Mexicanos*, 431.
Melgar, Señor, 116.
Melkarth, 24.
Melo, Garcia de, 260.
Menana, 102.
Mendieta, *Hist. Eccles. Ind.*, 157.
Mendoza, Gumesindo, 155; curator of Museo Nacional in Mexico, 444.
Menendez, *Geog. del Peru*, 212.
Mengarini, G., *Flat-head Grammar*, 425.
Mentone caves, 390.
Menzel, *Bibl. Hist.*, ii.
Menzies, Wm., his library and catalogue, xii.
Mer de l'Ouest, 79.
Mercator map (1538), 125.
Mercer, H. G., 405.
Mercurio Peruano, 276.
Meredith, a Welsh bard, 109.
Merian, M., xxxi.
Merida, 188.
Meridian, the first, where placed by the ancients, 8.
Merivale, C., *Conversion of the Northern Nations*, 85.
Merom, Ohio, 408.
Meropes, 22.
Merry Meeting Bay, 102.
Mesa, Alonso de, 260; *Anales del Cuzco*, 270.
Metal, use of, 418; working in Peru, 256; among the early Americans, 417.
Metz, Dr. C. L., finds palæolithic implements in Ohio, 340, 341; *Prehist. Mts. Little Miami Valley*, 408.
Meunier, V., *Les ancêtres d'Adam*, 383.
Mexia y Ocon, J. R., 279.
Mexico (country), linguistics of, viii; held to be Fousang, 78, 80, 81; correspondences in languages with Chinese, 81; with Sanskrit, 81; Asiatic origin of games, 81; jade ornaments in, 81; Asiatic origin, references on, 81; obscurities of its pre-Spanish history, 133; early race of giants, 133; chronologies, 133; the Toltecs arrive, 139; the confederacy growing, 147; its nature, 147; portraits of the kings, 148; sources of pre-Spanish history, 153; the early Spanish writers, 153; the courts and the natives, 160; MS. annals, 162; general accounts in English, 169; *Archives de la Com. Scient. du Mexique*, 270; ethnology of, 172; character of its civilization, 173, 176; the confederacy, 173; diverse views of the extent of the population, 174; disappearance of their architecture, 174; map by Santa Cruz, 174; mode of government, 174, 175; their palaces, 175, 176; notes on the ruins, 176; astronomy in, 179; idols still preserved, 180; superstitions for writings, 180; origin of the people, 375; copper, use of, 418; variety of tongues in, 426; culture, 329, 330. *See* Toltecs, Nahuas, Anahuac, Aztecs, Chichimecs.
Mexico (city), founded, 133, 144; Clavigero's map in facs., 143; its lakes, 143; other maps, 143; facs. of the map in Coreal's *Voyages*, 145; a native acc. of the capture, 162; calendar stone, 179; used to regulate market days, 179; Museo Nacional, 419, 444; its *Anales*, 444; view of, 180, 181; forgeries in, 180; no architectural remains, 182; the city gradually sinking, 182; relics still beneath the soil, 182; Bandelier's notes, 182; old view of the city, 182; early descriptions, 182; its military aspect, 182; relics unearthed, 182; temple of (views), 433, 434.
Meye, Heinrich, *Copan und Quiriguá*, 196, 197.
Meyer, A. B., 417.
Meyer, J., map of Greenland, 131.
Mica, 416.
Michel, Francisque, *Saint Brandan*, 48.
Michigan mounds, 408.
Michinacas, 136.
Michoacan, 149, 433.
Micmacs, 321; language, 425; legends, 431; missions, 321; traditions of white comers among, 99.
Mictlan, 184, 435.
Mictlantecutli, 435.
Middle Ages, geographical notions, 30.
Miedna, 78.
Migration of nations in pre-Spanish times, 137, 139, 369; disputes over, 138; Gallatin's view, 138; bibliog., 139; Dawson's map of those in North America, 381; generally from the north, 381.
Mil, A., *De origine Animalium*, 370.
Milfort, a creek, 326.
Miller, J., *Modocs*, 327.
Miller, W. J., *Wampanoags*, 102.
Mindeleff, V., on Pueblo architecture, 395.
Minnesota mounds, 409.
Minutoli, J. H. von, on Palenqué, 191; *Stadt in Guatemala*, 195.
Miocene man, 387.
Miquitlan, 184.
Mirror of Literature, 110.
Mission Scientifique au Mexique, Ouvrages, 207.
Missions' effect on the Indians, 318.
Mississippi Valley, loess of, 388; mounds, 410.
Missouri, mounds, 409; pottery, 419.
Missouri River, lacustrine age, 348.
Mitchell, S. L., on the Asiatic origin of the Americans, 76, 371; on the Northmen, 102.
Mitchell, A., 410.
Mitchell, W. S., on Atlantis, 44.
Mitchener, C. H., *Ohio Annals*, 407.
Mitla, ruins of, 184; plan, 184.
Mitre, Gen. B., *Ollantay*, 282.
Miztecs, 136; subjugated, 149.
Mochica language, 227, 275, 276.
Modocs, 327.
Mohawks put English arms on their castles, 304, 324.
Mohegan Indians, their language, 423.
Moke, H. T., *Hist. des peuples Américains*, 172.
Moletta (Moletius) on the Zeno map, 129.
Molina, Alonzo de, 156.
Molina, Christoval de, in Peru, 262; *Fables and Rites of the Incas*, 262; on the Incas, 436.
Molina, *Vocabulario*, viii; *Arte de la lengua Mex.*, viii.
Möllhausen, *Reisen*, 396; *Tagebuch*, 396.
Moluccan migration to South America, 370.
Monardes, *Dos Libros*, xxix; *Hist. Medicinal*, xxix; likeness, xxix; *Joyfull Newes*, xxix.
Monboddo, Lord, on Irish linguistic traces in America, 83.
Moncacht-Ape, 77.
Money, 420.
Mongolian stock on the Pacific coast, 82.
Mongols in Peru, 82.
Monhegan, alleged runes on, 102.
Monogenism, 374.
Monotheism in America, 430.
Monro, R., *Anc. Scotch lake dwelling*, 393.
Montalboddo, *Paesi Nov.*, xix.
Montana mounds, 409.
Montanus, *Nieuwe Weereld*, i; on the Zeni, 111; *America*, xxxiv; on the sagas, 92; on the Madoc voyage, 109.
Monte Alban, 184.
Montelius, O., *Bibliog. de l'archéol. de la Suède*, 444.
Montémont, A., *Voyages*, xxxvii.
Montesinos, F., in Peru, 263; *Memorias antiguas*, 82, 263; *Anales*, 263; *Mémoire historique*, 263; on Jews in Peru, 115; *Mémoires*, 273.
Montesquieu, *Esprit des Lois*, 380.
Montezuma (hero-god), 147, 150.
Montezuma (first of the name), 146; in power, 147; various spelling of the name, 147; dies, 148.
Montezuma (the last of the name), 148; forebodings of his fall, 148; hears of the coming of the Spaniards, 149; his "Dinner," 174, 175.
Montfaucon, *Collectio*, 30.
Montgomery, James, *Greenland*, 69.
Moore, Dr. Geo. H., at the Lenox Library, xii; account of, xii.
Moore, Martin, 322.

Moore, M. V., 41.
Moore, Thos., *Hist. Ireland*, 61.
Moosmüller, P. O., *Europäer in America*, 88, 90.
Moquegua, 277.
Moqui Indians, 397, 429; representatives of the cliff dwellers, 395.
Moravian missions, 308, 318.
Moravian Quarterly, 109.
Morellet, Arthur, *Voyage*, 194; *Travels*, 195.
Morgan, Col. Geo., 319.
Morgan, L. H., his *Montezuma's dinner*, ix, 174; attacked by H. H. Bancroft, ix, 174; on the cradle of the Mexicans, 138; his exaggerated depreciation of the Mexican civilization, 173, 174; his relations with the Iroquois, 174; *Houses and House life*, 175, 420; *Ancient Society*, 175, 382; controverted, 380; his publications, 175; his death, 175; on Rau's views as respects the Tablet of the Cross, 195; on centres of migrations, 381; on human progress, 382; on the Pueblo race, 395; on the ruins of the Chaco cañon, 396; on the ruins on the Animas River, 396; on the social condition of the Pueblos, 397; on the moundbuilders, 401; finds their life communal, 402; on their houses, 402; *League of the Iroquois*, 325, 416; on bone implements, 417; on linguistic divisions, 422; on Indian life, 325; *Iroquois laws of descent*, 437; *Bestowing of Indian names*, 437; *Houses of American Aborigines*, 437.
Morgan, Thomas, on Vinland, 98.
Morillot, Abbé, *Esquimaux*, 105.
Morisotus, C., *Epist. Cent. duæ*, 370.
Morlot, A., 395; on the Phœnicians in America, 41.
Mormon bible, its reference to the lost tribes, 116.
Morris, C., 403.
Morse, Abner, *Anc. Northmen*, 105.
Morse, Edw. S., *Arrow Release*, 69; on the tertiary man, 387; on prehistoric times, 412.
Morse, Jed., *Report on Indian affairs*, 320.
Mortillet, G. de, *Le Signe de la Cross*, 196; *Antig. de l'homme*, 383; founds the *Materiaux*, etc., 411, 442; *L'homme*, 442; *Dict. des Sciences Anthropologique*, 442.
Morton, S. G., *Inquiry into the distinctive characteristics of the aborig. race*, 437; *Crania Amer.*, 372; his collection of skulls, 372; *Physical type of the American Indian*, 372; *Aboriginal Race of America*, 372; *Some observations*, 372; on the moundbuilders' skulls, 399, 403.
Morton, Thomas, *New English Canaan*, 369.
Mossi, H., on the Quichua language, 280.
Motolinía, *Historia*, 156.
Motupé, 276.
Moulton, J. W., *New York*, 93.
Moulton, M. W., 409.
Moundbuilders, connected with the Irish, 83; with the Welsh, 111; with the Jews, 116; with the later peoples of Mexico, 136, 137; Morgan on their houses, 175; Haynes's views, 367; literature of, 397; early Spanish and French notices of, 398; accounts by travellers, 398, 402; held to be ancestors of the Aztecs and other southern peoples, 398; emblematic mounds, 400; the most ancient, 402; believed to be of the Indian race, 400, 401, 402; earliest advocates of this view, 400; vanished race view, 400, 401, 402; Great Serpent mound, 401; no clue to their language, 401; mounds in New York built by the Iroquois, 402; date of their living, 402; divisions of the United States by their characteristics, 402; held to be Cherokees, 402; agriculturalists, 402, 410; sun-worshippers, 402; age of, 403; contents of the mounds, 403; fraudulent relics, 403; geographical distribution of their works, 404; built by Finns, 405; by Egyptians, 405; maps, 406; use of copper, 408; pipes, 409; military character, 409; turned hunters, 410; their textile arts, 419; cloth found, 419; pottery, 419.
Movers, *Die Phoenizier*, 24.
Mowquas, 111.
Moxa, 428.
M'Quy, Dr., 191.
Mudge, B. F., 409.
Muellenhof, *Alterthumskunde*, 4.
Muhkekaneew Indians, 116.
Mühlenpfordt, E. L., *Versuch*, 184.
Muiscas. *See* Muyscas.
Mujica, M. A., 282.
Müller, C., *Geog. Græci*, 34.
Müller, F., *Allgemeine Ethnographie*, 375.
Müller, J. G., on the Peruvian religion, 270; *Amer. Urreligionen*, 380, 430; on Quetzalcoatl, 433.
Müller, J. W. von, *Reisen*, 185.
Müller, Max, on early Mexican history, 133; on Ixtlilxochitl, 157; on the *Popul Vuh*, 167; on E. B. Tylor, 377; on American monotheism, 430.
Müller, P. E., *Icelandic Hist. Lit.*, 84; (with Velchow, J.) ed. *Saxo Gram.*, 92; *Sagenbibliothek*, 85.
Müller, *Handbuch des klas. Alterth.*, 5.
Muller, Frederik, xvi.
Mummies, in American caves, 391; of Incas, 234, 235; Peruvian, 276, 277.
Munch, P. A., *Det Norske Folks Hist.*, 84; *Olaf Tryggvesön*, 90; *Norges Konge-Sagaer*, 90.
Munich, Gesellschaft für Anthropologie, 443.
Muñoz, J. B., 191; *Historia*, ii; on the Norse voyages, 92.
Munsell, Frank, xv.
Munsell, Joel, xv; his publications, xv; sketch by G. R. Howell, xv.
Münster, Sebastian, his map, xxv; *Cosmographia*, xxv; likeness, xxvi, xxvii; *Kosmograffia*, xxviii; translations, xxviii; on the Greenland geography, 126.
Murphy, H. C., his library, ix; his *Catalogue*, ix; dies, ix.
Murray, Andrew, *Geog. Distrib. Mammals*, 82, 106.
Murray, Hugh, *Travels*, 93, 111; *Disc. in No. America*, 72; on the Northmen, 93.
Múrua, M. de, *Hist. gen. del Peru*, 264.
Museo Erudico, 276.
Museo Guatemalteco, 168.
Museo Mexicano, 444.
Music, 420.
Musical instruments, 420.
Mutsun language, 425.
Muyscas, myths of, 436; idol, 281; origin of, 80.
Myths, not the reflex of history, 429; literature of American, 429.

Naaman Creek, rock shelter at, 365.
Nachan, 135.
Nadaillac, Marquis de, *L'Amérique préhistorique*, 369, 412, 415; *Prehistoric America*, 415; on the autochthonous theory, 375; *De la période glaciaire*, 388; *Les prem. hommes*, 369, 412; *Mœurs des peuples préhistorique*, 412; *Les pipes et le tabac*, 416; *L'art préhist. en Amérique*, 419.
Nahuas, origin of, 134; direction of their migration controverted, 134, 136, 137, 138; earliest comers, 137; from the N. W., 137; date disputed, 137; their governmental organizations, 174; places of their kings, 174; their buildings, 182; picture-writing, 197; myths, 431. *See* Aztecs, Mexico.
Narborough, *Magellan Straits*, xxxiv.
Narragansetts, 323.
Nasca, Peru, 271, 277.
Nasmyth, J., 50.
Natchez Indians, 326; supposed descendants of Votanites, 134.
Natchez, relics at, 389.
Natick language, 423.
National Geographic Society, 438.
Natural Hist. Soc. of Montreal, 438
Nature, 443.
Naugatuck valley, 323.
Naulette cave, 377.
Nauset, 102.
Navajos, 327; expedition against, 396; weaving among, 420.
Neanderthal, race, 377; skull, 377, 389.
Nebel, Carlos, *Viaje pintoresco*, 179, 180.
Negro race, as primal stock, 373; of a stock earlier than Adam, 384.
Nehring, A., on animals found in Peruvian graves, 273.
Neill, E. D., on the Ojibways, 327.
Neolithic Age, 377; implements of, 377. *See* Stone Age.
Nepeña, 276.
Neue Berlinische Monatsschrift, 371.
Neumann, K. F., *Amerika nach Chinesischen Quellen*, 78, 80.
Névome language, 425.
New Brunswick shell heaps, 392.
New England Hist. Geneal. Society, xvii.
New England Indians, 322; mounds in, 404; visited by the Northmen, 94, 95, 96; shell heaps, 392.
New Grenada, map, 209; tribes of, 282.
New Hampshire, bibliog., xv; Indians, 322.
New Jersey, copies of docs. in her Archives, xiv; Indians, 325; shell heaps, 393.
New Mexico, map of ruins in, 397.
New Orleans, human skeleton found near, 389.
New York Acad. of Science, 438.
New York city, as a centre for the study of Amer. hist., xvii; its Hist. Soc. library, xvii; Astor Library, xvii; private libraries, x, xviii.
New York State, local history in, v; its library at Albany, xviii; the French import goods into, for the Indian trade, 311; its trade with the Indians, 311; Indians, 323; missions, 323; mounds, 404.
Newark, Ohio, map of mounds at, 407; described, 408.
Newcomb, Simon, opposes Croll's theory, 387.
Newfoundland, early visited by the Basques, 75; in the early maps, 74; Eskimos in, 106; Indians of, 321.
Newman, J. B., *Red Men*, 46.
Newport stone tower claimed to be Norse, 105.
Nezahualcoyotl, 146, 147; dies, 148.
Nezahualpilli, 148.
Nicaragua, early footprint in, 385; explorers of, 107; mythology, 434; sources of its history, 169.
Nicholas V, alleged bull about Greenland, 69.
Nicholls and Taylor, *Bristol*, 50.
Nienhof, *Brasil. Zee-en Landreize*, xxxiv.
Nijhoff, Martin, xvii.
Nilsson, *Stone Age*, 412.
Niza, Marco de, *Quito*, 268.
Noah, M. M., *American Indians descendants of the Lost tribes*, 116.
Nodal, J. F., on the Quichua tongue, 280; *Ollanta*, 281.
Nonohualcas, 136.
Nordenskjöld, A. E., *Exped. till Grönland*, 86; his belief in a colony on east coast of Greenland, 109; portrait, 113; on the Zeni, 114; *Bröderna Zenos*, 114; *Trois Cartes précolumbiennes*, 114, 117; *Studien*

und Forschungen, 114; finds the oldest maps of Greenland, 117; his projected *Atlas*, 125; on the Olaus Magnus map (1567), 125.
Norman, B. M., *Rambles in Yucatan*, 186.
Norman sailors on the American coasts, 97.
Norris, P. W., 409.
Norse. *See* Northmen.
North Carolina, antiquities, 410; rock inscriptions, 411.
Northmen, cut of their ship, 62; plan of same, 63; ship discovered at Gokstad, 62; another at Tune, 62; one used as a house, 64; depicted in the Bayeux tapestry, 64; flags, 64; weapons, 64; characteristics, 67; in Greenland, 68; in Iceland, 83; alleged visits to America, 98; their voyages seldom recognized in the maps of the xvth cent., 117.
Northwest coast, the Berlin Museum's *Nordwest Küste*, 76.
Nortmanus, R. C., *De origine gent. Amer.*, 370.
Norton, Charles B., his *Lit. Letter*, xv.
Norumbega held to be a corruption of Norvegia, 98.
Norway, early map, 118; in Fra Mauro's map, 120; in Olaus Magnus, 124, 125; by Bordone, 126; in Gallæus, 129.
Nott, J. C. (with Gliddon), *Types of Mankind*, 372; *Physical Hist. of the Jews*, 373; *Indigenous Races*, 374.
Nova Scotia, Indians, 321; shell-heaps, 392.
Nova Scotia Institute of Nat. Science, 438.
Novo y Colson, D. P. de, and Atlantis, 45.
Noyes, *New England's Duty*, 322.
Noymlap, 275.
Numismatic and Antiq. Soc. of Philadelphia, 438.
Nuttall, Thomas, *Arkansa Territory*, 326.
Nuttall, Mrs. Zelia, on Mexican communal life, 175; on the so-called Sacrificial Stone, 185; on complemental signs in the Mexican graphic system, 198; on Mexican featherwork, 420; on terra cottas from Teotihuacan, 182.
Nyantics, 323.

O'Brien, M. C., grammatical sketch of the Abnake, 423.
O'Curry, Eugene, *Anc. Irish history*, 50.
O'Flaherty, *Islands of Arran*, 50; *Ogygia*, 51.
Oajaca, 149, 433; sources of its history, 168; ruins in, 184; teocalli at (view), 436.
Obando, Juan de, his Quichua dictionary, 279; grammar, 279.
Ober, F. A., *Travels in Mexico*, 170; *Anc. Cities of America*, 177.
Obsidian, 417; implements, 358.
Ocean, ancient views of the, 7; depth of, 383.
Ocean Highways, 442.
Ococingo, 135.
Odysseus, voyage of, 6; his wanderings, 40.
Ogallala Sioux, 327.
Ogilby, *America*, i, xxxiv.
Ogygia, 12, 13, 23.
Ohio Archæological and Hist. Quarterly, 407.
Ohio Land Company (1748), formation of the, 309.
Ohio, mounds in, 405; bibliog. and hist., 406; *Centennial Report*, 406; pictographs, 410; State Board of Centennial managers, *Final Report*, 407.
Ohio Valley, ancient man in, 341; ancient hearths in, 389; caves, 391; English attempts to occupy, 312; frontier life, 319; Indians, 326.
Ojeda, A. de, describes pile dwellings, 364.
Ojibways, 327.
Olaf, Tryggvesson, 62; saga, 90; editions, 90.
Olaus Magnus, 65; *Hist. de Gentibus Septent.* 67.
Olivarez, A. F., 282.
Ollantai or *Ollantay*, 425; drama, 274, 242, 281; different texts, 281; its age, 282.
Ollantay-tampu *or* tambo, ruins, 220, 221, 271.
Olmecs, migration of, 135; earliest comers, 135; overcame the giants, 137.
Olmos, A. de, 156, 276, 279.
Olosingo, 196.
Omahas, 327.
Onas, 289.
Ondegardo, Polo de, in Peru, 260, 261; *Relaciones*, 261.
Onderdonk, J. L., 412.
Ongania, *Sammlung*, 47, 53.
Onondaga language, 424.
Onontio, 289.
Ophir of Solomon, 82, 369; found in Palenqué, 191.
Orbigny, A. d', *L'homme Américain*, 271; *Voyages*, 271; his ethnographical map of South America, 271.
Orcutt, S., *Indians*, 323; *Stratford*, 323.
Ordoñez, Ramon de, *La Creacion del Cielo*, etc., 168; *Palenqué*, 191.
Oré, L. G. de, *Rituale*, 227, 280.
Oregon, Indians, 328; mounds, 409; shell heaps, 393.
Orozco y Berra, helped by the collections of Icazbalceta and Ramirez, 163; *Geog. de las lenguas de México*, 135, 172, 427; *Dic. Universal de Hist.*, 172; *Mexico*, 172; *El Cuauhxicalli de Tizoc*, 185; *Códice Mendozino*, 200.
Orrio, F. X. de, *Solution del gran problema*, 76.
Ortega, C. F., ed. Veytia, 159.
Ortelius, on the Zeni, 111; holds Plutarch's continent to be America, 40; believed Atlantis to be America, 43; map of the Atlantic Ocean (1587), 58; map of Scandia, 129; and the sagas, 92.
Otomis, 136, 424; their language, 81.
Otompan, 140.
Otté, E. C., 271.
Otumba, fight at, 175.
Ovid, *Fasti*, 3.
Oviedo y Baños, J. de, *Venezuela*, 444.
Oxford Voyages, xxxiv.
Oztotlan, 139.

Paccari-tampu, 223.
Pachacamac, 234, 277.
Pachicuti, J. de S. C., *Reyno del Piru*, 430.
Pachacutec, Inca, 230, 277.
Pacific Ocean, great Japanese current, 78; its islands in geol. times, 383; long voyages upon, in canoes, 81.
Pacific Railroad surveys, 440.
Packard, A. S., on the Eskimos, 105.
Padoucas, 110.
Pæsi Novamente, xix; *Newe unbek. landte*, xx; fac-simile of title, xxi; *Nye unbek. lande*, xx; *Itinerariu Portugal*, xx; *Sensuyt le nouveau monde*, xx; *Le nouv. monde*, xxi.
Paez, 428.
Paéz-Castellano language, 425.
Page, J. R., 410.
Paijkull, C. W., *Summer in Iceland*, 83.
Paint Creek, map, 406.
Painter, C. C., *Mission Indians*, 328.
Palacio, Diego Garcia de, *Carta*, 168, 427.
Palacio, M., 281.
Palæolithic age, named by Lubbock, 377; its implements, 331; cut of, 331; man in America, 357, 358; could he talk? 421; developments towards the neolithic state, 365. *See* Stone Age.
Palenqué, position of, 151; ruins described, 191; first discovered, 191; age of, 191; restorations, 192; tablet, 193; sculptures from the Temple of the Cross, 193, 195; seen by Waldeck, 194; plans, 195; views, 195; statues, 196.
Palfrey, J. G., on the Northmen, 96; on the Newport tower, 105; on the Indians, 323.
Palin, Du, *Study of hieroglyphics*, 204.
Pallas, *Vocab. comparativa*, 424.
Palmer, Edw., 409; on a cave in Utah, 390.
Palmer, Geo., *Migrations from Shinar*, 374.
Palomino, 260.
Palos, Juan de, 155.
Palszky, F., 374.
Panchæa, 12.
Pandosy, M. C., *Yahama language*, 425.
Papabucos, 136.
Papantla, 178.
Paracelsus, Theoph., on the plurality of the human race, 372.
Paradise, position of, 31, 47.
Paraguay, 370.
Paravey, C. H. de, *Fou-Sang*, 80; *Nouvelles preuves*, 80; *Plateau de Bogota*, 80; replies to Jomard, 80.
Pareja, F., *La Lengua Timuquana*, 425.
Pareto, Bart. de, his map (1455), 56.
Paris, peace of (1763), 312, 313; Société de Géographie founded, 441; *Recueil de Voyages*, 441; *Bulletin*, 441.
Parkman, F., *California and the Oregon trail*, 327; *France and England in North America*, 316; on the Indian character, 317; *La Salle*, 318.
Parmenides, 3.
Parmentier, Col., 81.
Parmunca, 275.
Parsons, S. H., 437.
Parsons, Usher, on the Nyantics, 323.
Passamaquoddy legends, 431.
Patin, Ch., xxiv.
Pattison, S. R., *Age of Man*, 387; *Earth and the Word*, 383.
Patton, A., 408.
Pauw, De, *Recherches*, 173. *See* De Pauw.
Pawnees, 327.
Paynal, 432.
Payta, 275.
Pazos-kanki, V., his Quichua work, 280.
Peabody, Geo., 439.
Peabody Academy of Science, 438.
Peabody Institute (Balt.), xviii.
Peabody Museum of Archæology and Ethnology, 439; *Reports*, 439; *Special Papers*, 439.
Peale, T. R., 409, 410.
Pech, Nakuk, 164.
Peck, W. F., *Rochester*, 323.
Pecos, ruins, 396.
Pederson, Christiern, ed. of Saxo, 92.
Peet, S. D., *The Pyramid in America*, 177; on Pueblo architecture, 395; on the serpent symbol, 401; on the moundbuilders, 403, 408, 409; on mounds as totems, 408; on the Saint Louis mounds, 409; on early agriculture, 417; human faces in American art, 420; *Religious beliefs of the Aborigines*, 431; *Animal worship and Sun worship*, 431; *Religion of the Moundbuilders*, 431; edits *Amer. Antiquarian*, 439.
Pégot-Ogier, E., *Archipel des Canaries*, 48.
Peirce, C. S., on the Newport mill, 105.

Pelaez, Paula G., *Guatemala*, 168.
Pemicooks, 323.
Pemigewassets, 322.
Penafiel, Antonio, *Nombres géog. de México*, 427.
Penn, Wm., on Jews in America, 115.
Pennant, *Tour of Wales*, iii.
Pennock, B., 85.
Pennsylvania, Indians in, 306, 325; mounds, 405; settlers of, 307; their treatment of the Indians, 309.
Penobscots, 322; their legends, 431.
Pentland, J. B., map of Lake Titicaca, 246.
Pequods, 323.
Percy, Bishop, ed. Mallet's *Northern Antiquities*, 91.
Perdita, island, 48.
Perez, José, 77, 117, 404; preserver of Maya MSS., 163.
Perez, Pio, *Chron. Yucateca*, 164; his notes, 164.
Periegetes, D., *Periplus*, 39.
Peringskiöld, ed. *Heimskringla*, 91.
Perizonius, 22, 40.
Perkins, Fred. B., his sketch of Gowans, xv; *Scrope*, xv.
Pernetty, D., controverts De Pauw, 370; *Examen*, 370; *De l'Amérique*, 370.
Perrine, T. M., 408.
Perrot, Nic., *Mémoires*, 429.
Pertuiset, E., *Le Trésor des Incas*, 272.
Pertz, G. H., *Mon. Germ. Hist.*, 88.
Peru, Mongols in, 82; giants in, 82; the Ophir of Solomon, 82; Chinese in, 82; Jews in, 115; Votanites in, 134; civilization in, 209; evidences of it, 209; maps, 210, 211; bounds, 212; length of the settled condition of the Inca race, 212; plants and animals domesticated, 212; ancient burial-places, 214; pre-Inca people, 214; cyclopean remains, 220; water sacrifices, 221; deity of, 222; Pirua dynasty, 223, 225; its people, 227; Tampu Tocco, 223; Inca dynasty, 223; its duration, 225; list of the kings, 223; origin of the Incas, 223; their rise under Manco, 225; their original home, 226; their subjugation of the earlier peoples, 227; establish their power at Cuzco, 228; portraits of the Incas, 228, 267; picture of warriors, 230; Chanca war, 230; Inca Yupanqui, 230; war between Huascar and Atahualpa, 231, 262; names of the Incas, 231; succession of the Incas, 231, 232; their religion, 232; belief in a Supreme Being, 233; sun-worship, 233; plan of the Temple of the Sun, 234; religious ceremonials, 236, 240; astronomical knowledge, 236; their months, 236; festivals, 237; human sacrifices, 237, 238; learned men, 241; the Quichua language, 241; the court language, 241; references on the Inca civilization, 241; their bards, 242; dances, 242; musical instruments, 242; dramas, 242; quipus records, 242; healing art, 243; the central sovereign, 244; tributes, 245; the Inca insignia, 245; their architecture, 247; two stages of it, 247; their thatching, 247; ruins, 247; social polity, 249; the Inca family, 249; divisions of the empire, 249; provinces, 250; ruins of a village, 251; laborers, 251; bringing up of children, 251; land measure, 251; their agriculture, 252; hanging gardens, 252; irrigation, 253; peculiar products, 253; their flocks, 253; their roads, 254, 261; travelling, 254; map of roads, 254; colonial system, 255; military system, 255; arts, 255; metal-workers, 256; pottery, 256, 257, 258; weapons, 257; spinning, weaving, and dyeing, 257; cloth-making, 258; authorities on ancient Peruvian history, 259; the conquerors as authors, 260; lawyers and priests, 261; poetry, 262; chronology, 262; efforts to extirpate idolatry, 264; native writers, 265; *Relaciones descriptivas* filled out in Peru, 266; the *Informaciones* respecting the usurpation of the Incas, 268; pedigrees of the Incas, 268; ordinances, 268; works of travellers, 270, 272; origin of its civilization, 273; the great work of Raimondi, 273; on the geography, 273; editors of old works, 273; songs of the Incas, 274; ancient people of the coasts, 275; native language, 278; iron in, 418; cloths of, 420; mythology of, 436.
Peschel, O., *Gesch. der Erdkunde*, 36; *Erd- und Völkerkunde*, 48; on the Arab voyages, 72; *Gesch. des Zeitalters der Entdeck.*, 96; portrait, 391; *Abhandlungen*, 391; acc. of, 391; on the Polynesians, 82; *Races of Men*, 381; on Orozco y Berra, 427.
Petavius, Dionysius, *Uranologion*, 6, 8, 35.
Peter, R., 410.
Peter of Ghent. *See* Gante.
Peters, Richard, on the lost tribes, 116.
Petersen, N. M., *Danmarks Hist.*, 84.
Peterson, J. G., 84.
Peterson, *Rhode Island*, 105.
Petit Anse Island, basket-work discovered at, 348, 386.
Pettitot, P. E., *Langue Dènè-Dindjie*, 425; *Vocab. Français-Esquimau*, 425.
Petzholdt, *Bibl. Bibliog.*, xvii.
Peyrère, Isaac de la, *Groenland*, 85; editions and translations, 86; *Præadamitæ*, 384; *Man before Adam*, 384.
Peyster, J. W. de, *Miscellanies by an officer*, 321.
Phallic symbols, 81, 195, 429.
Philadelphia libraries, xviii.
Philip, King, his war, 297; prisoners in, 289.
Phillips, H., jr., 155, 444; on the alleged Nova Scotia runes, 102.
Phillips, J. S., 372.
Phillipps, Sir Thomas, 155; receives some of Kingsborough's MSS., 203; *Catalogue*, 203; his copy of Kingsborough's book, 203.
Philoponus, *Nova typis transacta navigatio*, 48.
Phœnicians and maritime discovery, 23, 29.
Photography of the Yucatan ruins, 186.
Picard, *Peuples idolatres*, xxxiii.
Pichardo, J. A., and the Boturini collection, 160.
Pickering, Chas., his ethnolog. map, 82; *Races of Man*, 374; *Men and their geog. distribution*, 381.
Pickering, John, 423.
Pickett, E., *Testimony of the Rocks*, 403, 409.
Pictographs, 105, 410.
Picture-writing, notes on, 197; that of the Aztecs and Mayas early confounded, 197, 205 (*see* Hieroglyphics); recent sales of MSS., 200; Maya method, 202; P. Martyr's descriptions, 203; in Kingsborough's work, 203.
Pidgeon, Wm., *Traditions of De-coodah*, 400; on Fort Azatlan, 408.
Piedrahita, *Granada*, 436.
Pierre, Henry, xxviii.
Pile dwellings, 364.
Pillars of Hercules, 25.
Pilling, Jas. C., *Bibliog. Indian Languages*, *Proof-sheets*, vii, 414, 423; on linguistic MSS., 423.
Pim, Bedford, *Dottings*, 197.
Pima language, 425.
Pimentel, Antonio, *Relaciones*, 164.
Pimentel, F., *Lenguas indígenas de México*, viii, 142, 425, 426.
Pinart, Alphonse, *Les Aléoutes*, 78; *Catalogue*, 414, 423, 425; *Coleccion de linguistica*, vii; *Bibl. de linguistique Amér.*, 425.
Pinart-Brasseur Catalogue, vii, xiii.
Pindar on the Atlantic Ocean, 28.
Pinelo, Ant. de Léon, *Biblioteca*, 413; Barcia's ed., 413.
Pinelo. *See* Léon y Pinelo.
Pinkerton, John, *Voyages*, xxxvi.
Pinzon's voyages, acc. of, xxiv.
Pipart, Abbé J., 200; *Astronomie des Méxicaines*, 179.
Pipe-stone quarries, 416.
Piquet, Father, 308.
Pirinda-Othomi language, 426.
Piruas, 222.
Pisco, valley, 277; mummy from, 277
Pissac, 236.
Pizarro, Pedro, 260.
Pizigani, Fr., map (1367), 50, 55; cut of, 54; (1373), 53, 55.
Plato, on the form of the earth, 3; *Phaedo*, 3; *Timaeus*, 3, 15, 42; on the Atlantis story, 15, 41; his works, 34; editions, 42.
Platzmann, Julius, *Grammatiken*, vii.
Pleistocene man in America, 329, 357. *See* Tertiary and Quaternary man.
Pliny on the form of the earth, 3; *Nat. Hist.*, 15, 35, 42; his *Atlantis*, 42.
Pliocene man, 385. *See* Pleistocene.
Plummets, 417.
Plurality of races, 372.
Plutarch, *De Placitis Philosophorum*, 3; his Saturnian continent, 23; *Moralia*, 35; on Solon, 42.
Poinsett, J. R., *Notes on Mexico*, 180.
Poisson, J. B., *Animadversiones*, 370
Polo, Marco, xxiv, xxviii, xxxv, xxxvi.
Polybius, 34; on the branches of the ocean, 7.
Polynesians, their relations to the Malays, 81; their route to America, 81; migrations, 82, 376.
Pomar, J. B., *Antigüedades de los Indios*, 164; *Memorias históricas*, 164; on a Mexican house, 420.
Ponce, Father Alonzo, 197.
Pontanus, *Rerum et urbis Amst. hist.*, xxxiii; on the Zeni, 111.
Pontiac's conspiracy, 284, 314; number of warriors, 315; posts captured, 316.
Pontoppidan, *Norway*, 92.
Poole, W. F., 43; on Donnelly's *Atlantis*, 45; on Weise's *Disc. of America*, 45.
Popular Mag. of Anthropology, 442.
Popular Science Monthly, 439.
Popular Science Review, 443.
Porcelain in pre-Spanish times, 177.
Porcupine bank, 51.
Portuguese discoveries in America, bibliog., xix; the first explorers of the African coast, 38; early views of the American coast, 120.
Posidonius, 5, 34.
Post, C. F., in Ohio, 311.
Potato in Peru, 213.
Potter, W. P., 409.
Potter, *Early Hist. Narragansett*, 323.
Potter's wheel, 419.
Pottery, collections of, 418, 419; paper on, 419; in Peru, 256, 257.
Pourtalès, Count, on human remains in Florida, 389.
Powell, David, 109.
Powell, Maj. J. W., in the Colorado cañon, 396; portrait, 411; *Survey of the Rocky Mt. region*, 412; *Ann. Reports Bur. Ethnol.*, 412; on the mound-builders, 401; views on language, 423; *Evolution of language*, 423, 440; on the Wyandots, 327, 440; on tribal society, 328; *Philosophy of the No. Amer. Indians*, 431; *Mythology of the No. Amer. Indians*, 431, 440; director of Bureau of Eth-

nology, 439; his linguistic studies, 439; edits *Contributions to Ethnology*, 440.
Powers, Stephen, on the California Indians, 81; *Tribes of California*, 81, 328.
Pownal, Gov. Thomas, suggests the cranial test of race, 372.
Prantl, *Aristoteles*, 7; *Himmelsgebäude*, 7.
Pratt, W. H., 408.
Praying Indians, 309.
Preadamites, 384.
Preble, G. H., on Norse ships, 62.
Precession of the equinoxes, 387.
Prehistoric archæology, canons of, 329; Internat. Congresses, 411.
Prehistoric time, usual divisions of, 377; stages of development not decided by time, 377.
Prescott, W. H., on the Northmen, 96; *Mexico*, 163; notes on it by Ramirez, 163; on the Mexican civilization, 174; his relative use of early Spanish writers in his *Peru*, 263, 269; his library, 269; on the Mexican connection with Asia, 375.
Prestwich, on cataclysmic force, 382; on the age of man, 384; *On the drift containing implements*, 384; *Flint-implement-bearing beds*, 386.
Prevost, Abbé, *Voyages*, xxxv.
Price, E., 403.
Price, J. E., 258.
Prichard, J. C., *Researches*, 320, 412.
Priest, Josiah, *Amer. Antiq.*, 372.
Prime, W. C., on Gowans, xv.
Prince, Thos., his library, i.
Prinz, R., *De Solonis Plutarchi fontibus*, 42.
Pritt, Jos., *Olden Time*, 319.
Proclus, comment on Plato, 35; *Comment. in Timaeum*, 41.
Proudfit, S. V., 347.
Prunières, 357.
Ptolemy, on the form of the earth, 3; on the size of the known earth, 8; his system revived, 32; his influence, 34; editions, 34; bibliog., 35; *Almagest*, 35; on the Atlantic islands, 47.
Pueblo Indians, arts of, 416; pottery, 419; connection with the Aztecs, 427; general references, 397; their race, 395; ruins among them, 395; their connection with the mound-builders, 395. *See* Zuñi, Moqui, etc.
Pueblo region, maps of, 394, 397.
Pulgar, Fernando del, xxiv.
Pullen, Clarence, 397.
Pulszky, F., *Human races and their art*, 420.
Pumpelly, R., *Across America*, 327.
Puquina, 274; language, 226, 280.
Purchas, Samuel, xxxiii; on the Zeni, 111; buys the *Codex Mendoza*, 204.
Purpurariæ, 14.
Putnam, C. E., 404; *Authenticity of the elephant pipes*, 404.
Putnam, F. W., on the California Indians, 328; on the origin of Americans, 375; on the Trenton implements, 334, 337, 388; *Palæolithic implements*, 388; on Kentucky caves, 390; on shell heaps, 392; on Jeffries Wyman, 392; on the Great Serpent mound, 401; his position on the question of moundbuilders, 402; on their skulls, 403; on Fort Ancient, 408; in the Little Miami Valley, 408; on Fort Azatlan, 408; on stone graves in Tennessee, 410; on the Kentucky mounds, 410; in Cassino's *Standard Nat. Hist.*, 412; on the arts of Southern California, 416; edits the archæological part of *Wheeler's Survey*, 416, 440; on soap-stone quarries, 416; on traces of stone-working, 417; on jade in America, 417; on the melting of metal, 417; finds meteoric iron in the mounds, 418; silver, 418; gold, 418; on copper objects, 418; in Mexico, 418; on moundbuilders' pottery, 419; on Tennessee pottery, 419; *Conventionalism in Anc. Amer. art*, 420; on cloth in the mounds, 420; as curator of Peabody Museum, 439; on Amer. archæological collections, 440; his comments on the relics of the Naaman Creek rock shelter, 367.
Putnam, Rufus, *Ross County, Ohio*, 408.
Pyramids in America, 177.
Pythagoras, 3.
Pytheas, 34; on the Atlantic, 28; at Thule, 28.

Quakers, bibliog., xvii; in Pennsylvania, oppose resistance to Indians, 308; relation to the Indians, 325.
Quaritch, Bernard, the London bookseller, xvi; his *Museum*, xvi; his *General Catalogues*, xvi; in the "Sett of Odd Volumes," xvi; sketch by W. H. Wyman, xvi.
Quarry of pipe-stones, 416.
Quarrying stone, 416.
Quartz, 417.
Quartzite, 417.
Quaternary man, the earliest, 387.
Quatrefages de Bréan, A. de, *Les Polynésiens*, 82; *Crania Ethica*, 373; *Unité de l'espèce humaine*, 374; *Races humaines*, 374, 387; *Human Species*, 374; *Nat. Hist. of Man*, 374, 387, 411; *Les progrès de l'Anthropologie*, 378; *Hommes fossiles*, 389, 411; *Rapport sur le progrès de l'Anthropologie*, 411.
Quauhnahuac conquered, 147.
Quauhtlatohuatzin, 146
Queh, F. G., 167.
Quellenata, ruins, 249.
Quemada, ruins, 183.
Querez, 394.
Querlon, xxxv.
Quetzalcoatl (a king), 140; discredited by Brinton, 141.
Quetzalcoatl (a divinity), a white-bearded man, 137; the myth, 137; identified with Cortés, 149; Bastian on, 172; his mound, 179; oppressed by Tezcatlipoca, 431; references, 432; historical basis of his story, 432; effigy, 432; under other names, 434.
Quiahuiztlan, 164.
Quiché-Cakchiquel peoples of Guatemala, 135; their geog. position, 151.
Quichés, language, 427; myths, 435; origin of, 134; traditions, 135; their power in Guatemala, 150; warned of the Spaniards' coming, 151; their geog. position, 151.
Quichuas, their language and literature, 82, 241, 278; grammars, 278; vocabularies, 278; myths of, 436; original home, 226.
Quignon, Mount, human jaw found at, 390.
Quinames, 133, 136.
Quinantzin, 142.
Quincy, Josiah, *Hist. Harvard University*, iii.
Quinsai, 51.
Quinté Bay mounds, 410.
Quipus, 242; cut, 243.
Quiriguá, ruins, 196; plan, 196; references, 197.
Quito, Hassaurek on, 272; map, 211; early accounts lost, 268; later histories, 268.
Quitus, 227.
Quivira, 394.

Races, unity or plurality of, bibliog., 372.
Rada, De la, on Rosny, 201; *Les Vases péruviennes*, 257.
Rada y Delgado, J. D. de la, publishes Landa's *Relacion*, 165.
Radisson, P. E., *Voyages*, 318.
Rae, John, 106.
Rafinesque, C. S., on Atlantis, 46; on the Delawares, 325; *Anc. Mts. of America*, 372; on the mounds, 409; his character, 424; introd. to Marshall's *Kentucky*, 424; *Ancient History*, 424; *The American Nations*, 424.
Rafn, C. C., *Grönlands Hist. Mindesmaerker*, 86; autog., 87; *Americas Geog.*, 87; ed. Olaf Tryggvesson's Saga, 90; portrait, 90; his career, 93; *Cabinet d'Antiq. Amér.*, 93; *Antiq. Americanæ*, 94; bibliog., 94; his lesser statements about the Northmen, 94; *L'ancienne géog. des régions arctiques*, 94; *Antiq. Américaines*, 94; influence of Rafn, 96.
Ragine, A., *Découv. de l'Amérique*, 78.
Raimondi, Ant., *El Peru*, 273.
Rain-god, 180.
Ralegh, Sir Walter, on De Bry, xxxii.
Ramirez, José F., edits Duran's *Historia*, 155; on Sahagún, 157; his collection of MSS., 157, 163; notes on Prescott, 163; *Bibl. Mex.*, 414.
Ramirez de Fuenleal, *Hist. de los Méxicanos por sus Pinturas*, 431.
Ramon de Ordoñez, *Hist. del Cielo*, 134. *See* Ordoñez.
Ramusio edits P. Martyr and Oviedo, xxiii; *Navigazioni*, xxiii, xxviii; on the Zeni, 111.
Randolph, J. W., xv.
Ranking, John, *Conquest of Peru by the Mongols*, 82.
Rask, Erasmus, 88; on the Irish discovery of America, 83.
Rasle, S., *Abnake language*, 423.
Rau, Chas., on Dighton Rock 104; on the Palenqué Tablet, 195; on the progress of study in the hieroglyphics, 202; *Catal. Nat. Museum*, 403; on Illinois mounds, 408; *Articles*, etc., 411; on the aboriginal implements of agriculture, 417; *Prehistoric fishing*, 417; on the stock in trade of an aboriginal lapidary, 417; various papers on stone implements, 417; on Amer. pottery, 419; *Aboriginal Trade*, 420; thought the earliest man could not talk, 421; *Articles on Anthropol. Subjects*, 439; *Archæolog. Coll. of the U. S.*, 440; *Lapidarian Sculpture*, 440.
Rawlinson, Geo., *Antiq. of Man*, 381, 382.
Rawlinson, Sir H. C., on the Zeni, 113.
Ray, Luzerne, 323.
Rea, A. de la, *Mechoacan*, 168.
Read, Harvey, 418.
Read, M. C., 407; *Archæology of Ohio*, 407; on the Tennessee mounds, 410.
Reade, John, 328.
Reck, P. G. F. von, *Diarium*, 326.
Recollects, missions, 317.
Recueil de Voyages, etc., xix.
Red River of Louisiana, 440.
Red River of the North, mounds, 410.
Red pipe-stone quarry, 416.
Registro Yucatéco, 444.
Reynolds, E. R., 416; *Shell-heaps at Newburg, Md.*, 393.
Reynolds, H. L., jr., *Metal Art of Anc. Mexico*, 418.
Reid, *Bibl. Amer.*, ii.
Reikjavik, 61.
Reillo, island, 49.
Reinaud, *Relations de l'Empire Romaine avec l'Asie*, 11; *Géog. d'Abulfada*, 47.
Reindeer Period, 339, 377.
Reisch's map, 122.
Reiss, W., and A. Stübel, *Necropolis of Ancon*, 273.
Relics, spurious, 180.
Remesal, Ant. de, *Hist. gen. de las Indias*, 168; praised by Helps, 168.
Renard, on St. Paul's Rocks in the Atlantic Ocean, 45.
Repartimientos, 174.
Retzius, A., *Present state of Ethnology*, 44; on the human skull, 373;

on the unity of man, 374; on the Guanche skulls, 116, 117.
Reusner, *Icones*, xxiv.
Réville, Albert, *Origin and growth of religion*, 241, 431.
Revista Méxicana, 444.
Revista Peruana, 276.
Revue Américaine, 441.
Revue d'Anthropologie, 442.
Revue d'Architecture, 217.
Revue Ethnographique, 441.
Revue des Soc. Savantes, 38.
Rhees, W. J., *History of the Smithsonian Institution*, 439.
Rhode Island, docs. in her Archives, xiv; Indians, 323.
Rialle, G. de, *La Mythologie*, 430.
Ribas, Juan de, 155.
Ricardo, Ant., 278.
Riccioli, *Geog.*, 5.
Rice, A. T., *Essays from No. Amer. Rev.*, 92.
Rich, Obadiah, his career, iii; dies, iv; his catalogues, iv; assists Kingsborough, 203; obtains his MSS., 203; helped Prescott, 260.
Richarderie. *See* Boucher.
Richardson, J. M., 408.
Richardson, *Voyages*, xxxvi.
Riggs, R. S., 423; *Dacota language*, 424; on the Dacotah myths, 431.
Rigollet, convinced by De Perthes, 390.
Rikardsen, K., 107.
Rimac, 277.
Rink, Hinrich, *Eskimoiske Eventyr*, 70; portrait, 106; best authority on the Eskimos, 106; his publications, 106; *Tales of the Eskimo*, 107; *Danish Greenland*, 107; *Eskimo Tribes*, 107; on their dialects, 107; their origin and descent, 107; their primitive abode, 107; their traditions, 107; *Ostgrönländerne*, 131. *See* Greenland.
Rio, Ant. del, at Palenqué, 191; *Ruins of an anc. city*, 191.
Rio de Janeiro, Nat. Museum, 444; *Mémoires*, 444.
Rios, P. de los, 205.
Riseland, 130.
River drift, man of, 377.
Rivero, M. E. de, *Antigüedades Peruanas*, 270; translations, 270.
Rivera, P., 183.
Rivière, E., in the Mentone caves, 390; *Un Squelette humain*, 390.
Robertson, D. A., 403, 405.
Robertson, R. S., 401, 403, 408.
Robertson, Samuel, 74.
Robertson, Wm., *America*, ii. 169; on the Norse voyages, 92; his nearly correct view of the anc. Mexican civilization, 173; severe on Clavigero, 158; disbelieved in pre-Spanish ruins, 176; on the incas, 269; portrait, 269; on the Amer. Indians, 320; on seventeenth-century literature of Americana, 413; his bibliog., 413.
Robin, *Louisiane*, 398.
Robinson, Conway, *Disc. in the West*, 93.
Robinson, Edw., 439.
Robinson, *Life in California*, 328.
Rocca, inca, 229.
Rock inscriptions of the Indians, 104, 105, 410, 411.
Rock shelter at Naaman's Creek, 365.
Rock-writing, 105.
Rocks, cup-like cavities in, 417.
Rockall, 51.
Rockford tablet, 404.
Roehrig on the Sioux, 77.
Rogers, Horatio, *Private libraries of Providence*, xvii.
Roisel, *Etudes ante-historiques*, 46.
Rojas, *Cholula*, 180.
Roman, G., 265.
Roman, H., *Republica de las Indias*, 434.
Roman coins, in the Danish shell-heaps, 382; found in America, 41.
Romans, Bernard, *Florida*, 326, 372; on the autochthonous Amer. man, 372.
Romans in the Atlantic, 26.
Rome, *Società Geog. Ital.*, *Bollettino*, 444.
Romero on Mexican languages, vii.
Roquefeuil, de, *Voyage*, 78.
Rosa, Gonzalez de la, 274, 280.
Rosas, Dr., 281.
Rosny, Léon de, *L'Atlantide*, 46; on Fousang, 80; *Variétés Orientales*, 80; *Les doc. écrit. de l'antiq. Amér.*, 139, 201, 207, 442; on Sahagún, 157; gives fac. of Aztec map, 163; *Essai sur le déchiffrement*, etc. 163, 198, 201, 207; on Landa's Alphabet, 200; *Les écritures figuratives*, 201; *Archives paléographiques*, 201, 442; *Anc. textes Mayas*, 201; *Nouvelles Recherches*, 201; his studies on Spain and Portugal, 201; *Les Sources d'histoire anté-Columbienne*, 201, 413; bibliog. 201; portrait, 202; on the *Codex Telleriano-Remensis*, 205; on Brasseur's ed. of the *Codex Troano*, 207; discovers the *Codex Perezianus*, 207; *Manuscrit dit Méxicain, No. 2 de la bibl. impériale*, 207; his works on Amer. archæology, 207; on jade industries, 417; *Revue Orientale et Américaine*, 441.
Rosny, Lucien de, *Les Antilles*, 412, 442; *Le tabac*, 416; *La Céramique*, 419.
Ross, Thomasina, 271.
Rosse, Irving C., 106.
Rothelin, Abbé, *De Bry*, xxxii.
Rotz, his map of Greenland, 126.
Roujow, *Races humaines*, 390.
Rowbotham, J. F., *Hist. of Music*, 420.
Royal Geographical Society and its publications, 442.
Royal Historical Soc. *Trans.*, 443.
Royal Society of Canada, 438.
Royal Society, 442.
Royce, C. C., on the Cherokees, 326; *Indian Cessions of land*, 440; on the Shawanees, 326.
Royllo, island, 49.
Ruchamer, *Newe unbek. landte*, xx.
Rudbeck, on Atlantis, 16.
Ruffner, E. H., *Ute Country*, 327.
Ruge, *Der Chaldäer Selenkos*, 7.
Ruins in Middle America, notes on, 176.
Runes, alleged ones in Nova Scotia, 102; cuts of, 66, 67; age of, 66; references, 66; in Greenland, 87.
Runnels, M. T., *Sanbornton, N. H.*, 404.
Rupertus, *Dissertationes*, 40.
Russell, I. C., *Lake Lahontan*, 349.
Ruttenber, E. M., *Hudson River Indians*, 325.
Ruxton, *Life in Far West*, 111, 327.
Ruysch's map, 120, 122.

Saabye, Hans E., 108.
Sabin, Jos., his publications, vi; *Amer. Bibliopolist*, vi; *Dictionary*, vi, 414; *Squier Catal.*, viii, 414; *Menzies Catal.*, xii.
Sabine, Lorenzo, on the Indians in Maine, 322.
Sac and Fox tribes, 327.
Sacrificial Stone in Mexico, 180, 181, 185.
Sacsahuaman, ruins, 220, 221.
Sagard, *Canada*, 429; reference to copper mines, 417.
Sagas, when written, 84; credibility of, 87, 98, 99; fac-simile of script, 87; largely myths, 88; when put in writing, 88; *Codex Flatoyensis*, 88, 99; bibliog., 91; absurdities in, 99; oldest maps in accordance with, 129. *See* Northmen, Iceland, etc.
Saghalien, 80.
Sagot, P., 425.
Sahagún, Father, as linguistic student, 156; portrait, 156; his true name, 156; bibliog., 157.
Sahuaraura, inca, Dr. J., 281; *Recuerdos de la Monarquia Peruana*, 270.
Saint. *See* St.
Sails used by the Peruvians, 420.
Salcamayhua, J. de, S. P. Y., *Relacion*, 266.
Saldamando, E. T., *Los Antiquos Jesuitas del Peru*, 223, 262.
Sale, Ant. de la, *La Salade*, 85.
Salisbury, Stephen, jr., 137; assists Le Plongeon, 186, 187; *The Mayas*, 187; *Terra Cottas of Isla Mujeres*, 187.
Salone on Atlantis, 46.
Salter, John, 328.
San Juan, cliff houses on the, 395; pueblo, 396.
San Miguel, 49.
San Tomas, his grammar, 278.
Sana, 276.
Sanborn, J. W., *Seneca Indians*, 323.
Sanbornton, N. H., Indian fortification, 404.
Sanford, Ezekiel, *Hist. United States*, 320.
Sans, R., 264.
Sanskrit roots in Mexican, 81.
Sanson, Guillaume, on Atlantis, 16; his map, 18.
Santa, 275.
Santarem, *Hist. de la Cosmog.*, 38; his atlas, 53.
Santillan, Fernando de, *Relacion*, 261.
Sanuto, Marino, his map (1306), 53; acc. of, 53 (1320), 55.
Saravia, B. de, *Antig. del Peru*, 261, 268.
Sargasso Sea, 25.
Sargent, Winthrop, on the Cincinnati mounds, 398, 437; plan of the Marietta mounds, 405.
Sarmiento de Gamboa, P., discovers islands, 268; *Viage al estrecho de Magellanes*, 268.
Sars, J. E., *Norske Hist.*, 85.
Satanagio. *See* Man Satanaxio.
Satanaxio. *See* Man.
Saunders, Trelawny, map of Peru, 211.
Saussure, H. de, *Ruines d'une anc. ville*, 182.
Savage, A. D., 196.
Savage, Jos., 409.
Sawkins, J. G., 184.
Saxe-Eisenach, Duke of, 205.
Saxenburg, island, 47.
Saxo-Grammaticus, *Hist. Danica*, 91.
Scandinavia. *See* Northmen, Norway, Sweden, Iceland.
Schaefer, *Entwicklung, etc.*, 3; *Gestalt und Grösse der Erde*, 39; *Philologus*, 5.
Schaghticoke Indians, 324.
Schellhas, *Die Mayahandschrift*, 205.
Scherer, J. B., *Recherches*, 76, 424, 445.
Scherzer, K., *Wanderungen*, 166; *Las Hist. del Origen de los Indios*, 166; *Quirigua*, 197.
Schiern, F., *Un Enigme*, 26.
Schlagintweit, 412.
Schmerling, Dr., *Recherches sur les ossemens*, 390.
Schmidel, *Brazil*, xxxii.
Schmidt, E., 402; *Dissert. de America*, 40; *Die ältesten Spuren des Menschen*, 384; *Anthropol. Methoden*, 411.
Schmidt, Julius, *Copan und Quirigua*, 196, 197.
Schneider, C. E. C., 41.
Schoebel, C., among the pueblos, 397.
Schöning, Gerhard, *Norges Riges Hist.*, 92.
Schonlandia, 129.
Schoolcraft, H. R., *Books in the Indian tongues*, vii; on the Northmen, 96; on the Grave Creek inscription, 102; on the Dighton Rock, 102, 104; *Indian Tribes*, 320, 376, 430, 441; opinions of it, 320, 441; otherwise

called *Archives of Aboriginal Knowledge*, 441; and *Ethnological Researches*, 441; F. S. Drake's ed., 441; his notes on antiquities, 376; *Grave Creek Mound*, 403; *Report on Iroquois*, 324, 405; *Notes on the Iroquois*, 324, 405; on Virginia mounds, 410; on Florida pottery, 419; his linguistic studies, 424; dies, 441; rivalry of Catlin, 441.
Schouten in De Bry, xxxii.
Schrader, *Namen der Meere*, 13.
Schultz-Sellack, Carl, *Die Amer. Götter*, 202, 434.
Schultz, *Travels*, 405.
Schumacher, H. A., *Petrus Martyr*, xx.
Schumacher, P., 393; on pottery making, 419.
Schwab, Moïse, 404.
Schwatka, F., on the Eskimos, 107.
Science, 439.
Scioto Valley, map of mounds, 406.
Scipio's dream, 9, 11.
Scoffern, John, *Stray leaves*, 383.
Scolvus, Jac., his landfall, 129. *See* Skolno.
Scott, P. A., 350.
Scott, Sir Walter, on the Sagas, 83.
Scotland, early map of, 118.
Scudder, S. H., *Catal. of Scientific Serials*, 438, 441.
Scull, G. D., edits Radisson, 318.
Scylax on the Atlantic, 28; *Periplus*, 28.
Scythian migration to America, 370.
Sea of Darkness, 32, 74.
Seager, his drawing of the Dighton Rock, 102.
Sebillot, Paul, *Légendes*, 47.
Seeman, B., *Dottings*, 197.
Selden collection, 205.
Selish grammar, 425.
Sellers, on arrow points, 417.
Seminole Indians, 326.
Semites, 25.
Seneca, L. A., *Questionum Nat.*, 35; works, 35; on the westward passage, 27; his prophecy, 29; his "Ultima Thule," 29; his *Medea*, 29.
Seneca Indians, 323; origin of the name, 323; their burial mound, 405. *See* Iroquois.
Septon, J., 85.
Se-quo-yah, 326.
Serpent mound, 401.
Serpent symbol, 401.
Serpent, worship of, 429.
Sertorius, 14, 26.
Seven Caves, 138.
Seven Cities, island of, 31, 47, 48.
Sewall, Samuel, on Hornius, 370; *Phænomena*, 115.
Sewell, Stephen, on Dighton Rock, 103, 104.
Shaler, N. S., on the New Jersey gravels, 334; their implements, 388; on the disappearance of the mastodon, 389; on Ohio Valley caves, 391; *Kentucky Survey*, 402; on the mounds, 410.
Shaw, J., 408.
Shawanees, 307, 326; in Pontiac's conspiracy, 316.
Shea, J. G., *Library of Amer. Linguistics*, vii; *Catholic Missions*, 318; on the Indians of Nova Scotia, 321; translates Martin's *Jogues*, 323; on the Wisconsin Indians, 327; *Dict. Français-Onontagué*, 424; *Lib. of Amer. Linguistics*, 425; its contents, 425; *French Onondaga Dict.*, 425.
Shell-heaps, 391; contemporary with the cave-men, 391; contents of those in No. America, 392; general references, 392, 393.
Shell-money, 420.
Shell-work, 417.
Shepard, H. A., *Antiq. of Ohio*, 405, 407.
Sherman, D., 325.
Sherwood, J. D., 403.
Sherwood, R. H., 322.
Shetimasha Indians, 426.
Ships, speed of ancient, 24; of the fifteenth century, 73; a British ship, 110. *See* Northmen.
Short, C. W., 437.
Short, J. T., *No. Amer. of Antiq.*, vii, 412, 415; on Fousang, 81; on the antiquity of man in America, 330.
Shoshones, arts of, 416; their migrations, 381.
Sierra, Justo, 165.
Sign-language. *See* Gesture language.
Sigüenza y Gongora, C. de, his chronology of Mexico, 133; collection of, 158.
Silenus, 21.
Silliman, *Journal of Arts*, 371. See *Amer. Journal of Science and Arts*.
Sillustani, 236; Chulpas at, 248; cut, 250.
Silver, 418.
Silvestre, *Paléographie*, 205.
Siméon, Rémi, *Les Annales Méxicaines*, 164; *La lengue Méxicaine*, 427; *Sur la numération*, 170.
Simms, *Views and Reviews*, 328.
Simon, Mrs. B. A., *Hope of Israel*, 116; *Ten Tribes*, 116.
Simonin, L., *L'homme Américain*, 375, 381.
Simpson, H. F. M., *Prehist. of the North*, 85.
Simpson, J. H., *Navajo Country*, 327; *Mil. Reconnaissance*, 395, 396; *Explorations of Utah*, 440.
Sinding, Paul K., *Scandinavia*, 96; *Scandin. Races*, 96.
Sinkers, 417.
Sioux, 327. *See* Dacotahs.
Sitgreave, Capt. L., *Expedition*, 396.
Sitjav, B., language of the San Antonio Mission, 425.
Six Nations. *See* Iroquois.
Skeleton in armor, 105.
Skertchly, S. B. J., 352.
Skolno on the Labrador coast, 76. *See* Scolvus.
Skrælings, 68, 105. *See* Eskimos.
Skulls, trepanned, 244; deforming of, 244. *See* Craniology.
Sladen, Von, *Brazil*, xxxii.
Slafter, E. F., *Voyages of the Northmen*, 76.
Small, John, on Thule, 118.
Smedt, C. de, 48.
Smith, Alf. R., xvi.
Smith, B., 169; on the Dighton Rock, 104; *Heve language*, 425; *Pima language*, 425.
Smith, C. D., 416.
Smith, C. H., 369; *Human Species*, 374.
Smith, Ethan, *View of the Hebrews*, 116.
Smith, Mrs. E. A., on the Iroquois, 425; *Myths of the Iroquois*, 431.
Smith, Col. James, 292, 319; *Captivity*, 288.
Smith, John, in De Bry, xxxii.
Smith, J. G., *Atla*, 45.
Smith, John Russell, xvi.
Smith, J. T., *Northmen in New England*, 96; *Disc. of America by the Northmen*, 96.
Smith, J. W. C., 410.
Smith, J. Y., 369.
Smith, Jos., *Friends' books*, xvii; *Anti-quakeriana*, xvii; *Bibl. Quakeristica*, xvii.
Smith, Wm., *New York*, 324.
Smithsonian Institution, 439; its publications, 439.
Smucker, Isaac, 403; archæology in Ohio, 406; on the Newark mounds, 408; on the Alligator mound, 409.
Smyth, Thos., *Unity of the Human Race*, 374.
Snorre Sturleson, *Heimskringla*, 83.
Snorre, ancestor of Thorwaldsen, the Danish sculptor, 65.
Soap-stone quarries, 416.
Sobolewski, S., his catalogue, xiii; his De Bry, xxxii.
Sobron, F. C. Y., *Los idiomas*, vii.
Société Americaine de France, 176, 441.
Société d'Anthropologie, 390; *Bulletin* and *Mémoires*, 442.
Société d'Ethnographie, *Mémoires*, 442; *Les Documents écrits de l'Antiquité Amér.*, 442.
Société Ethnographique, *Bulletin* and *Mémoires*, 441.
Soil formation in America, 461.
Solberg, Th., bibliog. of Scandinavia, 98.
Soldan, Paz., *Geog. del Peru*, 212.
Soligo, Christ., map (1487 ?), 58.
Solinus, *Polyhistor.*, 35.
Sollars, W. J., 106.
Solomon, his Ophir, 82. *See* Ophir.
Solon and Atlantis, 15, 42.
Soloryano, Juan de, *Política Indiana*, 268.
Soloutre, village, 357, 377.
Soltecos, 136.
Soto, Francis de, 155; on the mounds, 397.
South America, flora corresponds with African, 117; prehistoric man in, 412; languages, 428.
Southall, Jas. C., on the Unity of Races, 374; believes in the theory of degeneracy, 382; *Recent origin of Man*, 382, 384; biblical trust, 382; *Epoch of the Mammoth*, 382; his views, 382; controversy with the archæologists, 382; on his opponents, 382.
Southern States, Indians of, 326.
Southey, Robert, *Madoc*, 111.
Spain, arms of, 267; hieroglyphic MSS. in, 203; Sociedad Anthropológica Española, 444; *Revista*, 444.
Spainhour, J. M., 410.
Spanish America, writers of, ii.
Sparks, Jared, his library, vi; his MSS., vii; dies, vii.
Speaker's Commentary, 383.
Speech wanting in the palæolithic man, 377.
Speer, Wm., 81.
Spilbergen on De Bry, xxxii.
Spilsbury, J. H. G., his Quichua work, 280.
Spineto, *Hieroglyphics*, 205.
Spitzbergen sometimes called Greenland in early accounts, 107.
Spizelius, Theoph., *Elevatio*, 115.
Sporting Review, 213.
Spotswood, Gov., on the frontier posts, 309.
Sprengel, M. C., *Europäer in Nord Amerika*, 92.
Squier, E. G., on Zestermann's *Colonization of America*, 60; his publications and library, vii, viii, 169, 272, 414; *Serpent Symbol*, 76; notes on Zestermann, 83; on the Grave Creek inscription, 102; *Catalogue of his library*, 169; *Central America*, 169; *Collection of Docs.*, 169; *The Great Calendar Stone*, 179; introd. to Morellet's *Travels*, 195; on the Central America ruins and their relative age, 196; *Nicaragua*, 197; on Tenampua, 197; criticised by Bovallius, 197; on a defect in the signatures of Kingsborough's book, 203; in Peru, 224; at Chacha, 224; at Lake Titicaca, 247; *La géog. du Pérou*, 247; *Primeval monuments of Peru*, 249; *Peru, incidents of Travel*, 272; his mission and studies in Peru, 272; *Les monuments du Pérou*, 272; death, 272; *Traditions of the Algonquins*, 325; on early notices of the Pueblo race, 395; *Semi-civilized Nations of New Mexico and California*, 396; (with Davis), *Anc. Mts. of the Mississippi Valley*, 399; commended by Gallatin and others, 439; on the New York mounds, 399; *Observations on*

mounds, 399; doubts the Grave Creek tablet, 404; *Aborig. Mts. State of N. Y.*, 405; *Antiq. of N. Y. State*, 405; *Monograph of Authors*, 427; *Serpent Symbol*, 429.
Squier, Mrs. M. F., 195.
St. Bonaventure, G. de, 427; *Grammaire Maya*, 200.
St. Brandan, island of, 32; his story, 48; his island, 48.
St. Clement, 37.
St. Lawrence Island, 77.
St. Louis Academy of Science, 438; mounds near, 409.
St. Malo, legend of, 48.
St. Patrick, 83.
St. Petersburg, Museum of Ethnography, 443.
St. Thomas in Central America, 137; connected with Quetzalcoatl, 432.
Stadium, length of, 4.
Stallbaum, ed. of Plato, 43; on Phœnician knowledge of America, 43.
Stanford, *Compend. of Geog.*, 412.
Stanley, J. M., *Portraits of No. Amer. Indians*, 439.
Steenstrup, Japetus, on the Zeni, 114.
Steenstrup, K., on Scandinavian ruins, 86; *Osterbygden*, 131; on the Greenland colonies, 109.
Steffen, Max, *Landwirtschaft*, 253, 417.
Stein, Gerard, *Die Entdeckungsreisen*, 72.
Steiner, Abraham G., 408.
Steinthal, H., *Ursprung der Sprache*, 421.
Stelle, J. P., 410.
Stenstrom, H., *De America*, 93.
Stephens, Geo., *Oldest Doc. in Danish*, 66; *No. Runic Mts.*, 66; *Runic Mts. of Scandinavia*, 66.
Stephens, J. L., *Yucatan*, 164, 176, 186; prints a Maya doc., 164; held responsible by Morgan for exaggerated notions of the Maya splendor, 176; *Central America*, 176, 186, 194; in Yucatan, 185, 186; map, 188; at Uxmal, 189; at Chichen-Itza, 190; his results in Yucatan, 190; at Palenqué, 194; at Copan, 196.
Stephens, *Lit. of the Cymry*, 111.
Stephenson, Geo., 410.
Stephenson, M. F., 410.
Sterling, H. H., *Irish Minstrelsy*, 50.
Stevens, E. T., *Flint Chips*, 392, 444.
Stevens, Henry, controversy with Harrisse, v; buys Humboldt's library, vi; on Humboldt, vi; *Recoll. of Lenox*, xi; bought Crowninshield library, xii; dealer in Americana, xiii; *Schedule of Nuggets*, xiii, xiv; *Bibl. Hist.*, xiii, xiv; dies, xiii; on De Bry, xxxii; proposed *Bibl. Americana*, xiv; his transcripts of MSS., xiv; agent of the Smithsonian Inst., the British Museum, the Bodleian, xiv; his *English Library*, xiv; *Amer. Bibliographer*, xiv; *Books in the Brit. Mus.*, xiv; *Hist. Nuggets*, xiv; *Bibl. Amér.*, xiv; *Hist. and Geog. Notes*, xiv; *Bibl. Geog. et Hist.*, xiv; *Amer. books with tails*, xv; *Hist. Collections*, xv; owns Franklin MSS., xv; list of his own publications, xv; *Bibliog. of New Hampshire*, xv; buys the Brockhaus collection, xvii; Zeni map, 113.
Stevens, H. N., xiv.
Stevens, John, *Voyages*, xxxv.
Stevens, J. A., *Geo. Gibbs*, 424.
Stevens, Simon, xiv.
Stevenson, Jas., on the cliff houses, 395; *Anc. habitations of the Southwest*, 397; catalogue of pottery, 419; researches among the Pueblos, 439.
Stevenson, J. E., 403; *Zuñi*, 396.
Stevenson, Mrs. T. E., *Religious life of the Zuñi child*, 440.
Stevenson, W., on navigation, xxxvi.
Stickney, C. E., *Minisink Region*, 323.
Stiles, Dr. Ezra, on the Dighton Rock, 104; *The United States elevated to glory*, 371; on the origin of the American, 371; on an Indian idol, 437.
Stockbridge Indians, 323.
Stoddard, Amos, *Louisiana*, 110.
Stoddard, *Louisiana*, 398.
Stoll, O., *Republik Guatemala*, 428.
Stone, O. M., *Teneriffe*, 48.
Stone, W. L., on the moundbuilders, 41; *Uncas and Miantonomoh*, 323; his lives of Johnson, Brant, and Red Jacket, 325; on the N. Y. mounds, 405.
Stone Age in America, oldest implements yet found, 343; different stones used, 362. *See* Palæolithic, Neolithic.
Stone, artificial cleavages of, 388; chipping, the process, 417; work in, 416.
Strabo, on the size of the known world, 8; his views of habitable parts, 9; *Geographia*, 5, 34; editions, 34; translations, 34; Gosselin's French transl., 34; translated by order of Nicholas V, 37.
Strebel, H., *Alt-Mexico*, 172, 420.
Strinhold, A. M., 85.
Stroll, Otto, *Guatemala*, 141.
Strong, Moses, 409.
Strutt, *Dict. Engravers*, xxvii.
Stuart and Kuyper, *De Mensch*, 320.
Stübel, A., *Necropolis of Ancon*, 273; *Ueber Altperuvianische Gewebemuster*, 273.
Studley, Cordelia A., 390.
Sturleson, Snorro, *Heimskringla*, 91.
Sulte, B., on the Iroquois, 321.
Sumner, Chas., *Prophetic voices concerning America*, 40.
Sun, worship of, 429.
Sunderland library, xiii.
Susquehanna Valley Indians, 325.
Sutcliffe, Thomas, *Chili and Peru*, 272.
Sutherland, P. C., 106.
Sweden, anthropological studies in, 444.
Sweden, early map, 119, 124, 125, 129.
Swedes, their blinding patriotism, 88; on the Delaware, 307.
Sweetzer, Seth, on prehist. man, 412.
Swinford, *Mineral Resources of Lake Superior*, 418.
Swiss lake dwellings, 395; relics from, 395; general references, 395.
Switzler, W. F., *Missouri*, 409.
Sylvester, *Northern New York*, 323.

Tacitus, *Germania*, 28.
Tacna, 277.
Tamana, idol from, 281.
Tamoanchar, 135; geog. position, 151.
Tanmar. *See* Danmar.
Tanos, 394.
Taos, 394, 396.
Tapenecs. *See* Tepanecs.
Tapijulapane-Mixe, 426.
Tarapaca, 270, 275
Tarascos, 136.
Tarayre, G., *L'Exploration minéralogique*, 170.
Targe, xxxvi.
Tartar migrations to America, 369, 370; traces in N. W. America, 78.
Tassin, French geographer, 51.
Tayasàl, 175.
Taylor, A. S., bibliog. of California, ix.
Taylor, Isaac, *Alphabets*, 200.
Taylor, Jeremy, *Dissuasive from Popery*, 51.
Taylor, John, on the N. Y. mounds, 404.
Taylor, R. C., on the Wisconsin mounds, 400.
Taylor, S., 400.
Taylor, Thomas, 41; *Commentaries of Proclus*, 35.
Taylor, W. M., on mounds, 405.
Techotl, 146.
Tecpan, 175.
Tecpaneca conquered, 147.
Tehna, 394.
Tehuelhet, 428.
Tellerianо-Remensis Codex, 205.
Temple, Edw., *Travels in Peru*, 272.
Temple, *No. Brookfield*, 323.
Tempsky, G. F. von, *Mitla*, 184.
Ten Kate, H. F. C., 356; *Reizen*, 395
Tenampua, 197.
Tenayocan, 142.
Tennessee, aborig. remains, 410; pottery, 419; stone graves, 410.
Tenochtitlan. *See* Mexico (city).
Teoamoxtli, 158, 167.
Teoculcuacan, 138.
Teotihuacan, Olmecs at, 135; a religious shrine, 140; ruins, 182.
Teoyaomiqui, effigy, 182, 435.
Tepanecs, 136, 146.
Tepechpan, 162.
Tepeu, 435.
Tepeyahualco, 173.
Terceira, 49.
Ternaux-Compans, H., his library, iv; *Bibl. Amér.*, iv; *Voyages*, xxxvii, 273; his studies of Peru, 273; *La theogonie Méxicaine*, 431.
Terra cotta, 420.
Tertiary man, 387; evidences, 353, 385, 387.
Tertullian, *De Pallio*, 42.
Teruel, Luis de, 264; MSS. on the Peruvians, 264.
Textile arts, 419; impression preserved in pottery, 419; of the moundbuilders, 419.
Tezcatlipoca, 431; oppressor of Quetzalcoatl, 431.
Tezcuco, growth of, 140, 142; alleged empire at, 173; old bridge near, 182; old buildings, 182.
Tezozomoc, H. de A., 146; *Crónica Méx.*, 155, 163; MSS. on Mexican history, 162.
Theopompus of Chios, 21; his continent, 21.
Thévenot, bibliog., xii, xxxiv; *Voyages*, 204.
Thévet, A., on the Jewish migration to America, 115.
Thiersant, Dabry de, *Origine des Indiens*, 369.
Thomas, Cyrus, on Mexican MSS., 163; on the Mexican astronomy, 179; on Landa's alphabet, 200; *MS. Troano*, 201, 207; his course of study, 201; on Maya numerical signs, 205; on the mounds, 401; *Work on Mound Exploration*, 401; *Burial Mounds*, 401; disputes Putnam's view of the mounds, 402; presentations of his views on the moundbuilders, 402; on the elephant pipes, 404; on the builders of the mounds, 407; on the effigy mounds, 408, 409; on the stone graves of Tennessee, 410; on the Etowah mounds, 410; conducts mound explorations, 439; *Maya and Mexican MSS.*, 440.
Thomas, Mrs. Cyrus, bibliog. of Ohio mounds, 406.
Thomas, David, *Travels*, 405.
Thomas, Isaiah, founds Amer. Antiq. Soc., 437.
Thompson, E. H., *Atlantis not a Myth*, 44; on Yucatan, 187; on the "Elephants' trunks," 188.
Thompson, G. A., *New Theory*, 76.
Thompson, J., translates De Pauw, 370.
Thompson, T. P., *Knot Records of Peru*, 243; *Hist. of the Quipus*, 243.
Thompson, Waddy, *Recoll. of Mexico*, 180.
Thomson, Chas., *Enquiry*, 325.
Thorfinn Karlsefne, in Vinland, 65; Saga, 90.
Thorlacius, G., his map of Vinland, 130, 131.
Thorlacius, Theod., 130, 131.
Thorlakssen. *See* Thorlacius.
Thorndike, Col., Israel, iii.
Thorne, Robt., his map, 125.

Thornton, J. W., 102.
Thoron, Onffroy de, 82.
Thorowgood, Thomas, *Jewes in America*, 115; *Vindiciæ Jud.*, 115; *Digitus Dei*, 115.
Thorwald on Vinland, 65.
Three Chimneys (islands), 53.
Thule 117; discovered, 26; in Seneca, 29; varying position, 118.
Thurston, G. P., 81, 402.
Thyle, on Macrobius' map, 10. *See* Thule.
Tiahuanacu, position, 210; architectural details, 214, 215, 216, 217, 218; ruins restored, 219; ruins described, 215; doorway, 216, 218; seen by D'Orbigny, 271; various descriptions, 272, 273; by Bollaert, 273; by Basadie, 273; by Inwards, 273.
Tibullus, *Elegies*, 7.
Tides, Macrobius' view of, 11.
Tiele, P. A., xxxiii.
Tiguex, 394.
Tikal, 200.
Tilantongo, 148.
Tillinghast, W. H., "Geog. Knowledge of the Ancients," 1.
Timagenes, 42.
Timber brought from Vinland, 65.
Timberlake, Henry, on the Cherokees, 83.
Timucua language, 426.
Timuquana language, 425.
Tin mines, early, 24.
Tinneh, 77.
Tishcoban, 325.
Titicaca, lake, seat of worship, 222; its myth, 222; seat of the Piruas, 223; connected with the Inca myths, 224; dwellers near, 226; views of lake and ruins, 246; Squier's Explorations, 246; surveyed by J. B. Pentland, 246; Inca palace, 247; map, 248.
Tizoc, 148.
Tlacatecuhtli, 173.
Tlacopan forms a confederacy, 147.
Tlacutzin, 139.
Tlaloc, 435; rain-god, 180.
Tlapallan, 137, 139.
Tlapallanco, 139.
Tlascalans, 149.
Tobacco, mortars for pounding it, 416.
Tobar, Juan de, *Codex Ramirez*, 155; *Relacion*, 155; printed by Sir Thos. Phillipps, 155; *Hist. de los Indios*, 155.
To-carryhogan, 289.
Tollan, 137, 139.
Tollatzinco, 139.
Toloom, 190.
Toltecs, descendants of the Atlantides, 44; origin of, 135, 141; from Tollan, 137; their appearance in Mexico, 139; end of their power, 140; a nation or a dynasty, 140; their story, 140; their later migrations, 140; Brinton and Charnay disagree on their status, 141; Bandelier considers them Maya, 141; Sahagún the "giants," 141; Bandelier's view, 141; sources of their history, 141; MS. annals, 162; their astronomical ideas, 179; build the ruins of Yucatan, 191.
Tomo-chi-chi, 326.
Tomlinson, A. B., 403.
Tonocote, 428.
Topinard on the jawbone from the Naulette Cave, 377.
Torfæus, *Hist. Gronlandiæ*, 85; his character, 88; *Hist. Vinlandiæ*, 92; facs. of title, 91; places Vinland in Newfoundland, 99; gives maps, 129.
Toribio de Benevente, 155.
Torquemada, instructed by Ixtlilxochitl, 173; on the origin of Americans, 369; MS. used by him, 162; *Monarchia Ind.*, 157.
Torres Rubio, Irego de, in Peru, 279; his Quichua grammar, 278.
Torrid zone, notions regarding it, 6; they check exploration, 6.
Toscanelli on Antillia, 49; his ideas of the Atlantic ocean, 51; letter to Columbus, 51; different texts of it, 51, 52; his working papers, 52; his map, 56.
Totems, 408.
Totemism, 328.
Totonacs, 136.
Totul Xius, 152; sources, 153.
Toulmin, Harry, 110.
Tovar. *See* Tobar.
Trabega, 205.
Trade of the Amer. Aborigines, 416; no good acc. of, 420.
Traffic, intertribal, 420.
Treaties with the Indians, methods of, 305.
Trees, rings of, as signs of age, 191, 403.
Trenton gravel bluff, view of, 335; the deposits described, 338; skulls found in, 356; gravels, 388; traces of man in, 388. *See* Delaware, New Jersey.
Trepanning in Peru, 244.
Trephining, 244.
Trigoso, S. F. M., *Descob. e Commercio dos Portuguezes*, xix.
Triquis, 136.
Tritemius, Joannes, *De Scriptoribus*, xx.
Trivizano, *Libretto*, xx.
Trivulgiana library (Milan), *vi.*
Tro y Ortolano, J., 205.
Trocadero Museum in Paris, 177.
Troïl, *Lettres sur l'Islande*, 84.
Trojans, ancestors of the Indians, 369.
Trömel, Paul, *Bibl. Amér.*, xvii, 413.
Troost, G., on Tennessee archeol. remains, 410.
Tross, Edwin, catalogues, xvi.
Trowbridge, D., 405.
Troyon, Prof., *Habitations lacustres*, 395.
Trübner, K. J., xvi.
Trübner, Nic., *Bibl. Hisp. Amer.*, xvi; dies, xvi.
Trumbull, J. H., on Indian languages, vii; edits the Brinley library catalogue, xii; *Indian Missions in New England*, 322; his studies in the Indian languages, 322, 423.
Trutat, E., 411.
Trutot, 442.
Truxillo, Diego de, *Relacion*, 260.
Truxillo, ruins near, 275.
Tschudi, J. D. von, on the llamas, 213; *Antig. Peruanas*, 270; *Reisen*, 270; *Travels*, 270; *Ollanta*, 281; on the Quichua language, 280; his grammar, 280.
Tula, 137; ruin at, 177.
Tulan, 135.
Tulan, Zuiva, 139.
Tumbez, 277.
Tungus, 77.
Tupac Inca Yupanqui, 230.
Tupis of South America, 136, 428.
Turnefort, 43.
Turner, G., 437.
Turner, Sharon, *Anglo-Saxons*, 88.
Turner, W., 423.
Turner, W. W., vii, 424, 440; *Indian Philology*, 439.
Tusayan, 394.
Tuscaroras, 310.
Tuttle, C. W., 102.
Two Sorcerers, island, 47.
Tylor, E. B., on Egyptian hieroglyphics, 41; *Scandin. civilization among Eskimaux*, 70; on connection of Asia and Mexico, 77; *Anáhuac*, 170, 174; applauds Prescott's view, 174; portrait, 376; his rank as an anthropologist, 377; *Early Hist. of Mankind*, 377, 380; *Early Mental Condition of Man*, 378; *Condition of Prehist. Races*, 378; on man's progress from barbarism to civilization, 378; *Primitive Culture*, 378; *Anthropology*, 378; *Amer. aspects of Anthropology*, 379; acc. of, 379; on the degeneracy of the savage, 381.
Tyrians on the Atlantic, 24.
Tzendal language, 427.
Tzequiles, 135.
Tzetzes, *Scholia in Lycophron*, 15.

Ua Corra, 50.
Uhde collection, 444.
Uhle, Max, 404.
Uiracocha, 222, 229.
Ukert, *Geog. der Griechen*, 28, 36, 46.
Ule, Otto, *Die Erde*, 44.
Ulloa, A., *Mémoires*, 271; *Voyage historique*, 271; *Not. Amer.*, 370.
Ulloa, J. J., *Voyage*, 271.
Ulloa, *Relacion Hist.*, 228.
Ulpius globe, 126.
Uncpapas, 327.
Unger, F., *Insel Atlantis*, 44.
United States Army, *Reports of Chief Engineer*, 396; geological survey, *Reports*, 396; National Museum, 440.
Upham, Warren, 333; *Recession of the ice sheet in Minnesota*, 346; *Ohio gravel beds*, 388.
Urcavilca, 230.
Urco, 229.
Uricoechea, E., *Memorias*, 282; *Lengua Chibcha*, 425.
Urlsperger Tracts, 326.
Urrabieta, xxxvii.
Ursel, Comte d', *Sud Amérique*, 272.
Ursúa, M., 175.
Urus, 226, 280.
Utah mounds, 409.
Utes, 327.
Utlatlan, position of, 151, 152.
Uxmal, position of, 151, 188; Totul Xius in, 153; communal house near, 175; seen by Zavala, 186; by Waldeck, 186; by Charnay, 186, 188; descriptions, 188; so-called elephants' trunks, 189; early accounts, 189; view of ruined temple, 189; seen by Brasseur, 189; inhabited when the Spaniards came, 190; plans, 190.
Uzielli, G., on Toscanelli, 51.

Valades, Didacus, *Rhetorica Christ.*, 154.
Valdemar-Schmidt, *Voyages au Groenland*, 109.
Valdez, Ant., 281.
Valencia, Martin de, 155.
Valentini, P. J. J., *Olmecas and Tultecas*, 137; on the Calendar Stone, 179; on Landa's alphabet, 200; *Mexican copper tools*, 418; *Katunes of Maya Hist.*, 152, 164.
Valera, Blas, his work lost, 209; his career, 261; his MSS. used by Garcilasso, 262.
Valera, Luis, 260.
Vallancey, Chas., 104.
Valmy, Duc de, 171.
Valpy, *Panegyrici veteres*, 47.
Valsequa, Gabriell de, his map (1439), 56.
Vancouver's Island, 81, 393.
Van den Bergh, L. P. C., *Amerika voor Columbus*, 75.
Van den Bos, Lambert, *Zee-helden*, xxxiv.
Van der Aa. *See* Aa.
Van Noort, Olivier, xxxiii.
Vanuxem, Professor, on shell heaps, 392.
Varnhagen, F. de, *L'Origine tourannienne des Américains*, 41, 117.
Vasquez, Francisco, *Guatemala*, 168.
Vasquez, T., 260.
Vater, J. S., *Ueber Amerikas Bevölkerung*, 60; (with Adelung), *Mithridates*, 422; *Analekten der Sprachenkunde*, 422.
Vaugondy, *Atlantis*, 16.
Veer, G. de, *Voyages*, 85.
Vega, Father, his collection of MSS., 157.
Vega, F. Nuñez de la, knew the Book of Votan, 134; *Obispado de Chiapas*, 134.
Vega, Garcilasso de la, in Peru, 265; house in which he was born, 265;

son of an Inca princess, 265; his expedition of De Soto, 265; *Commentarios Reales*, 265, 266; used Blas Valera, 265; wrote on Spain thirty years after leaving Peru, 266; corrects Acosta, 266; critics of, 266; dies, 266.
Velasco, Juan de, 279; *Reino de Quito*, 268, 273.
Ventancurt, *Teatro Mex.*, 171.
Vera, F. H., 413.
Vera Cruz, ruins near, 178.
Verneau, *Dans l'Archipel Canarienne*, 25.
Verreau, Abbé, on the beginnings of the Church in Canada, 317.
Vertuch, *Archiv für Ethnographie*, 413.
Vespucius in De Bry, xxxii; voyages, acc. of, xxiv; mentioned, xxviii, xxxiv, xxxv, xxxvi; map owned by him, 56.
Vetanzos, Juan de, used by Garcia, 369. *See* Betanzos.
Vetromile, *Abnakis and their history*, 466.
Veytia, on the Toltecs, 141; *Hist. Antiq. de Mejico*, 141, 159; better on the Tezcucans than on the Mexicans, 150; begins Mexican history at A. D. 697, 155; used Boturini's collection, 159; annotates Ixtlilxochitl's MSS., 162; continues Boturini's labors, 162.
Vicary, J. F., *Saga time*, 92.
Victor, J. D., *Disput. de America*, 40, 370.
Vicuña, 213.
Vienna, Anthropologische Gesellschaft, 443; Prähist. Commission, 443.
Viera y Clavijo, J. de, *Islas de Canaria*, 48.
Vigfússon, G., *Icelandic Eng. Dict.*, 85; *Icelandic Sagas*, 90.
Vigil, José M., 155.
Vikings, burial of, 62.
Vilcashuaman, ruins, 247, 271.
Villacastin, F. de, 260.
Villagutierre Soto-Mayor, *Conquista de Itza*, 165.
Villar, Dr., 282; *Uiracocha*, 271.
Villar, Leonardo, 266.
Villebrune, J. B. L., 370.
Vincent, *Commerce of the Ancients*, 117.
Vining, E. P., *An inglorious Columbus*, 80.
Vinland, found and named, 64; attempted identification, 65; last ship to, 65; probability of voyages to, 67; bibliog., 87, 98; the sagas, 87, 88; put in writing, 88; situated in Labrador, 92, 93, 96, 99; in Newfoundland, 92, 93, 94, 96, 99; in Greenland, 92, 98; in New York, 93, 102; not in America, 93; in New England, 93; in Maine, 102; in Massachusetts, 94, 99; in Rhode Island, 94, 96, 99, 102; in Africa, 100; maps, 94; those of Rafn reproduced, 95, 100; probability of the voyages to, 98; linguistic proofs of, 98; ethnographical proofs, 99; physical and geographical proofs, 99; tides in, 99; length of summer day in, 99; Rafn's attempts to identify it, 100; his map, 100; held to be a prolongation of Africa, 100; monumental proofs, 102; has no frost, 102; natives called Skrælings, 105; held to be north of Davis's Straits by the oldest Norse maps, 130; that by Stephanius (1570) in facs., 130; separated from America, 130.
Vinson, Julien, *La langue basque*, 75.
Viollet-le-Duc, *Habitation humaine*, 64, 176; belief in a yellow race in Central America, 81; on Norse ceremonials in the south, 99; his text to Charnay, 176; a restoration of Palenqué, 192.
Viracocha, 436.
Virchow, R., on Peruvian skulls, 244; on human remains found in Peruvian graves, 273.
Virgil, *Georgics*, 6; prophecy of Anchises, 27.
Virginia, docs. in her Archives, xiv; Indian conspiracy of 1622, 284; Indians, 325; mounds in, 410; graves, 410.
Visconti, 33; map (1311), 53; (1318), 53.
Vitalis, Ordericus, *Hist. Eccles.*, 88.
Vitziliputzli, 432.
Vivien de St. Martin, *Hist. de la Géog.*, 36; on Fousang, 80.
Vocabularies, numerous, 421; tests of ethnical relations, 421; formed as tests, 424. *See* Linguistics.
Vogel, Theo, xxxvii.
Vogeler, A. W., 393, 403.
Vogt, Carl, *Vorlesungen*, 369; *Lectures on Man*, 369, 443.
Völcker, *Homersch. Geog.*, 39.
Volney on the mounds, 398.
Von Baer, K. E., *Fahrten des Odysseus*, 40.
Voss, *Die Gestalt der Erde*, 39.
Votan, and his followers, 133, 141; *Book of Votan*, 134; dim connection with Guatemala, 150; with Yucatan, 152; myth of, 433.
Voyages, collections of, xxxiv; early ones to America, bibliog., xix.
Vreeland, C. E., *Antiquities at Pantaleon*, 197.
Vries, voyage to Virginia, xxxiv.

Wadsworth, M. E., 334; *Microscopic evidence of a lost continent*, 45.
Wagner, G., *De originibus Amer.*, 370; *Beiträge zur Anthropologie*, 443.
Wahlstedt, J. J., *Iter in Americam*, 92.
Waiknas, 136.
Waitz, T., on Peruvian anthropology, 270; *Naturvölker*, 369, 430, 443; *Anthropologie*, 378, 430; portrait, 378; *Die Amerikaner*, 172, 378; *Introd. to Anthropology*, 370, 378, 443.
Wake, C. S., *Chapters on Man*, 82; *Serpent Worship*, 429.
Walam-Olum, 325.
Waldeck, Frederic de, buys some of the Boturini collection, 162; *Voyage pittoresque*, 186; at Uxmal, 186, 188; portrait, 186; map of Yucatan, 188; in Yucatan, 194; *Monuments Anc. du Mexique*, 194; liberties of his drawings, 202; *Coleccion de las Antig. Mex.*, 444.
Walkenaer, C. A., *Voyages*, xxxvii.
Walkendorf, Bishop Eric, 107.
Walker, S. T., on Tampa Bay shell-heaps, 393.
Walker, *Athens County, Ohio*, 408.
Walker River cañon, 350.
Wallace, A. R., *Antiq. of Man in America*, 330; on climate and its influence on races, 378; *Tropical Nature*, 383; does not believe in sunken continents, 383; *Geog. Distribution of Animals*, 383; *Malay Archipelago*, 383; on the antiq. of man, 330, 384; *Island life*, 387.
Wallace, C. M., *Flint implements*, 345.
Wallace, Jas., *Orkney Islands*, 118.
Wallbridge, T. C., 410.
Wampanoag Indians, 102, 323.
Wampum, 420; belts, 420.
Ward, H. G., *Mexico*, 180.
Warden, David B., his library, iii; *Art de vérifier des dates*, iii; dies, iii; translates Rio on Palenqué, 191; on the origin of Americans, 192; on the mounds, 399; *Recherches*, 415.
Warner, J., 409.
Warren, Dr. J. C., on the mounds, 400.
Warren, W. F., *Key to Anc. Cosmologies*, 12; on Homer's earth, 39; *True Key*, 39; *Paradise Found*, 39, 47.
Warren, W. W., 327.
Washington, Col., expedition against Navajos, 396.
Washington, Geo., on the Dighton Rock, 104.
Washington, D. C., as a centre of study in Amer. history, xvii.
Water, proportion of, on the globe, 383.
Watkinson Library, xii.
Watrin, F., 326.
Watson, P. B., *Bibliog. of Pre-Columbian Discoveries*, 98.
Watts, Robt., i.
Weaving, art of, 420.
Webb, Daniel, 370.
Webb, Dr. T. H., 94.
Webster, Noah, on the mounds, 398.
Wedgwood, *Origin of language*, 422.
Weeden, W. B., *Indian money*, 420.
Wegner, G., *De Nav. Solomonæis*, 82.
Weigel, T. O., xvii; on De Bry, xxxii.
Weights used by the Peruvians, 420.
Weise, A. J., *Disc. of America*, 45, 98; on Atlantis, 45.
Weiser, Conrad, interpreter, 305; his career, 305; his papers, 305.
Welch, L. B., *Prehistoric Relics*, 408.
Welsh in America, 72. *See* Madoc.
West India Island, Malay stock in, 82.
Western Reserve Historical Soc., 407.
Westropp, H. M., *Prehistoric Phases*, 412.
Whately, Richard, *Polit. Economy*, 381; *Origin of Civilization*, 381.
Wheaton, Henry, *Northmen*, 93; French version, 93.
Wheeler, G. M., on the *Pueblos*, 395 *U. S. Geol. Survey*, 396, 440.
Wheelock, Eleazer, his charity school, 322; founds Dartmouth College, 322; *Indian Charity School*, 322; memoir, 322.
Whipple, Report on the Indian tribes, in *Pacific R. R. Repts.*, 396.
White's drawings in Hariot's *Virginia*, xxxiii.
White, John S., 62.
Whitney, J. D., *Climatic Changes*, 69, 383; searches in the Trenton gravels, 337; on the neolithic man in the tertiary gravels, 350; views the Calaveras skull, 385; his accounts of it, 385; *Auriferous Gravels*, 385; *Human remains of the Gravel series*, 385; disbelieves the precession of the equinoxes as affecting climate, 387; on the Trenton implements, 388; *Geol. of Lake Superior*, 418.
Whitney, W. D., *Language*, 74; *Bearing of language on the Unity of Man*, 372; *Testimony of language respecting the unity of the human race*, 422.
Whitney, W. F., *Bones of the native races*, 373.
Whittlesey, Col. Chas., on anc. hearths in the Ohio Valley, 389; *Antiquity of Man in the U. S.*, 391; portraits, 399; *Ancient Works in Ohio*, 399; *Weapons of the Race of the Mounds*, 400; on the Grave Creek tablet, 404; on the Cincinnati tablet, 404; surveys the Marietta mounds, 405; on the Ohio mounds, 407, 408; *Report* on the archæology of Ohio, 407; *Fugitive Essays*, 407; surveys the Newark mounds, 408; on Rock inscriptions, 410; *Anc. mining at Lake Superior*, 418; on anc. human remains in Ohio, 437.
Wicksteed, P. H., 241, 431.
Wiener, Charles, *Pérou et Bolivie*, 271; *Le communisme des Incas*, 271; *Les institutions de l'Empire des Incas*, 82, 271.

Wieser, F., on Zoana Mela, 122.
Wilde, Sir W. R., on lacustrine dwellings, 393.
Wilder, B. G., on Jeffries Wyman, 392.
Wilhelmi, K., *Island*, etc., 83, 96.
Willes, Richard, edits Eden, xxiii.
William of Worcester, 50.
Williams, C. M., 80.
Williams, G., *Guatemala*, 197.
Williams, H. C., 410.
Williams, H. L., 318.
Williams, Helen M., translates Humboldt's *Vues*, 271.
Williams, Isaac, memoir, 319.
Williams, John, *Prince Madog*, 110.
Williams, Roger, on the Jews in America, 115; *Key*, 423.
Williams, S. W., on Fousang, 80.
Williamson, Jos., on the Northmen in Maine, 97.
Williamson, Peter, *Sufferings*, 318.
Williamson on the Asiatic origin of Americans, 371.
Williamson, *No. Carolina*, 93.
Willson, Marcus, *American History*, 415.
Wilson, Sir Daniel, *Lost Atlantis*, 46; on Vinland, 97; *Historic Footprints in America*, 97; on Dighton Rock, 104; on the exaggeration of Mexican splendor, 174; on picture-writing, 198; on the Huron-Iroquois, 322; on the Canada tribes, 322; *Certain Cranial Forms*, 373; on the unity of man, 374; *American Cranial Type*, 374; portrait, 375; *Prehistoric Annals of Scotland*, 376; first used the word "prehistoric," 376; *Prehistoric Man*, 376, 379, 415; *Pre-Aryan Amer. Man*, 377; *Unwritten History*, 377; *Interglacial Man*, 388; on the moundbuilders, 402; on the Grave Creek tablet, 404; accepts the Cincinnati tablet, 404; on Canadian mounds, 410; on bone and ivory work, 417; on American pottery, 419; *Artistic faculty in the aborig. races*, 419; *American Crania*, 437.
Wilson, R. A., *New Conquest of Mexico*, 41, 174, 203.
Wimmer, L. F. A., *Runenskriftens, etc.*, 66.
Winchell, Alex., on Atlantis, 45; on the retrocession of the falls of St. Anthony, 382; *Preadamites*, 379, 384.
Winchell, N. H., *Geol. of Minnesota*, 333; discovers rude implements, 345; on copper mining, 418.
Winsor, Justin, "Americana," i; "Early Descriptions of America," etc., xix; *Ptolemy's Geography*, xxv; "Pre-Columbian Explorations," 59; "Cartography of Greenland," 117; "Mexico and Central America," 133; sources of the history of the modern Indians, 316; "Progress of Opinion respecting the Origin and Antiquity of Man in America," 369; "Bibliog. of Aboriginal America," 413; "Comprehensive treatises on Amer. Antiquities," 415; "Industries and Trade of the American Aborigines," 416; "American Linguistics," 421; "American Myths and Religions," 429; "Archæological Museums and Periodicals," 437; *Calendar of the Sparks MSS.*, 423.
Winthrop, Jas., on Dighton Rock, 103, 104.
Winthrop, John, the younger, 442.
Winthrop, R. C., 437.
Wisconsin Academy of Science, 438.
Wisconsin, Indians, 327; mounds in, 400, 408.
Wiseman, Cardinal, *Lectures*, 372.
Witchitas, vocabulary, 440.
Withrow, W. H., on the last of the Hurons, 322; on Jogues, 323.
Witsen, Nic., *Tartarye*, 123, 370.
Wittmack, L., on Peruvian plants found on graves, 273.
Wollheim, A. E., *Nat. lit. der Scand.*, 66, 88.
Woodward, Ashbel, *Wampum*, 420.
Workshops of stone chipping, 417.
Wormskiold on the sites of the Greenland colonies, 108.
Worsaae, J. A., *Vorgesch. des Nordens*, 85; acc. of, 85; *Prehistory of the North*, 62; *L'organisation des Musées*, 444; *Danes in England*, 61.
Worsley, Israel, *View of the Amer. Indians*, 116.
Worthen, A. H., 388.
Wright, B. M., *Gold ornaments from the graves*, etc., 273.
Wright, D. F., 410.
Wright, Geo. F., on the antiq. of man in America, 340; examines deposits in Delaware, 342; *Man and the glacial period*, 388; *Preglacial man in Ohio*, 388; *Ohio gravel beds*, 388.
Wright, Thomas, *St. Brandan*, 48.
Wureland, 117.
Wuttke, H., *Erdkunde*, 38, 49; on the Atlantic islands, 47.
Wuttke, *Gesch. der Schrift*, 205.
Wyandots, 327.
Wyhlandia, 117.
Wyman, Jeffries, 439; on the Calaveras skull, 353; portrait, 392; investigates shell-heaps, 392; death, 392; accounts of, 392; on the Florida shell heaps, 393; on the St. John River, 393.
Wyman, W. H., on Quaritch, xvi; *Bibliog. of Printing*, xvi.
Wynne, *Private Libraries of N. Y.*, x, xviii.
Wyoming Hist. and Geol. Soc., 438.

Xahila, F. E. A., 167.
Xenophanes, 6.
Xeres, on Peru, xxxvii.
Xibalba, 134; held to be Palenqué, 135; Brinton's view, 135.
Xicalancas, 136.
Xicaques, 169.
Ximenes, Francisco, 155; finds the *Popul Vuh*, 166.
Ximenes, *Gnomone fioretino*, 51.
Xinca Indians, 428.
Xochicalco, 180.
Xochimilca conquered, 147.
Xoloc founded, 142.
Xolotl, 162.
Xuares, Juan, 155.

Yahama language, 425.
Yahuar-huaccac, 229.
Yaqui, 135.
Yarrow, H. C., *Mortuary Customs*, 328, 440; on mound-burials, 408.
Yates and Moulton, *New York*, 104.
Yca, 277.
Youmans, Eliza H., 411.
Yucatan. *See* Mayas; difficulty of the chronology, 152; the Perez MS., 153; sources, 164; scant material, 164; Barendt's collection, 164; ruins, 185; early described, 186; seen by Stephens, 186; ancient records, 187; architecture, 188; Charnay's map, 188; other maps, 188; age of the ruins, 191; types of heads, 195; bas-relief, 208; had an Ethiopian stock, 370; crucible for melting copper used, 418; folk-lore, 434.
Yucay, 247.
Yuma language, 426.
Yuncas, 227; grammar of, 280.
Yupanqui, Inca, his portrait, 228; in power, 230; called Pachacutec, 230.

Zaborowski, *L'homme préhistorique*, 412.
Zacatecas, 183.
Zach, *Correspondenz*, 41.
Zachila, 184.
Zahrtmann on the Zeni, 112.
Zamná, 152, 434.
Zani, Count V., 205.
Zapaña, 229.
Zapata, MS. Hist. of Tlaxcalla, 162; *Cronica de Tlaxcallan*, 164.
Zapotecs, 146, 149.
Zaragoza, Justo, 167, 444.
Zarate, Augustin de, *Prov. del Peru*, 261.
Zavala, L. de, on Uxmal, 186.
Zayi, ruins, 188.
Zegarra, G. P., *Ollantay*, 281, 282.
Zegarra, Pedro, 281; *Ollantay*, 425.
Zeisberger, David, missionary, 423; *Indian Dictionary*, 423; on a Delaware grammar, 437.
Zeitschrift für die Anthropologie, 443.
Zeitschrift für physische Aerzte, 443.
Zeller, *Gesch. der Griech. Philosophie*, 36.
Zeni, brothers, xxviii, xxxiv, xxxvi; northern voyage, 72, 111; bibliog., 115; *Dei Commentarii del Viaggio*, 73; fac-simile of title, etc., 70, 71; their map perhaps used by Bordone, 73; it made an impression, 74, 128; history of the belief in their voyage, 111; the map, 111, 112, 114; fac-simile of, 11, 127; altered in Ptolemy, 111, 114; fac-similes of this alteration, 111, 128; maps possibly to be used by the young Zeno, 114, 126; map compared with that of Olaus Magnus, 126; condition of northern cartography at the date of the Zeno publication, 126, 127.
Zerffi, *Hist. development of art*, 416.
Zestermann, C. A. A., *Colonization of America*, 60, 83.
Ziegler, *America*, xxxiii, 125.
Zoana Mela, 122.
Zorzi, *Pæsi Nov.*, xix.
Zumárraga, Bp., orders a collection of traditions, 164; *Hist. de los Mexicanos*, 164; *Codex Zumárraga*, 164; his alleged destruction of MSS., 203.
Zuñi, representatives of the cliff dwellers, 395; references on, 396; visits to, 396.
Zurita, A. de, on the Quiches, 168; *Rapport*, 153; character of, 153.
Zurla, Cardinal, on the Zeni, 112; *Dissertazione*, 112; *Di Marco Polo*, 47, 112; *Fra Mauro*, 47.
Zutigils, 152.

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